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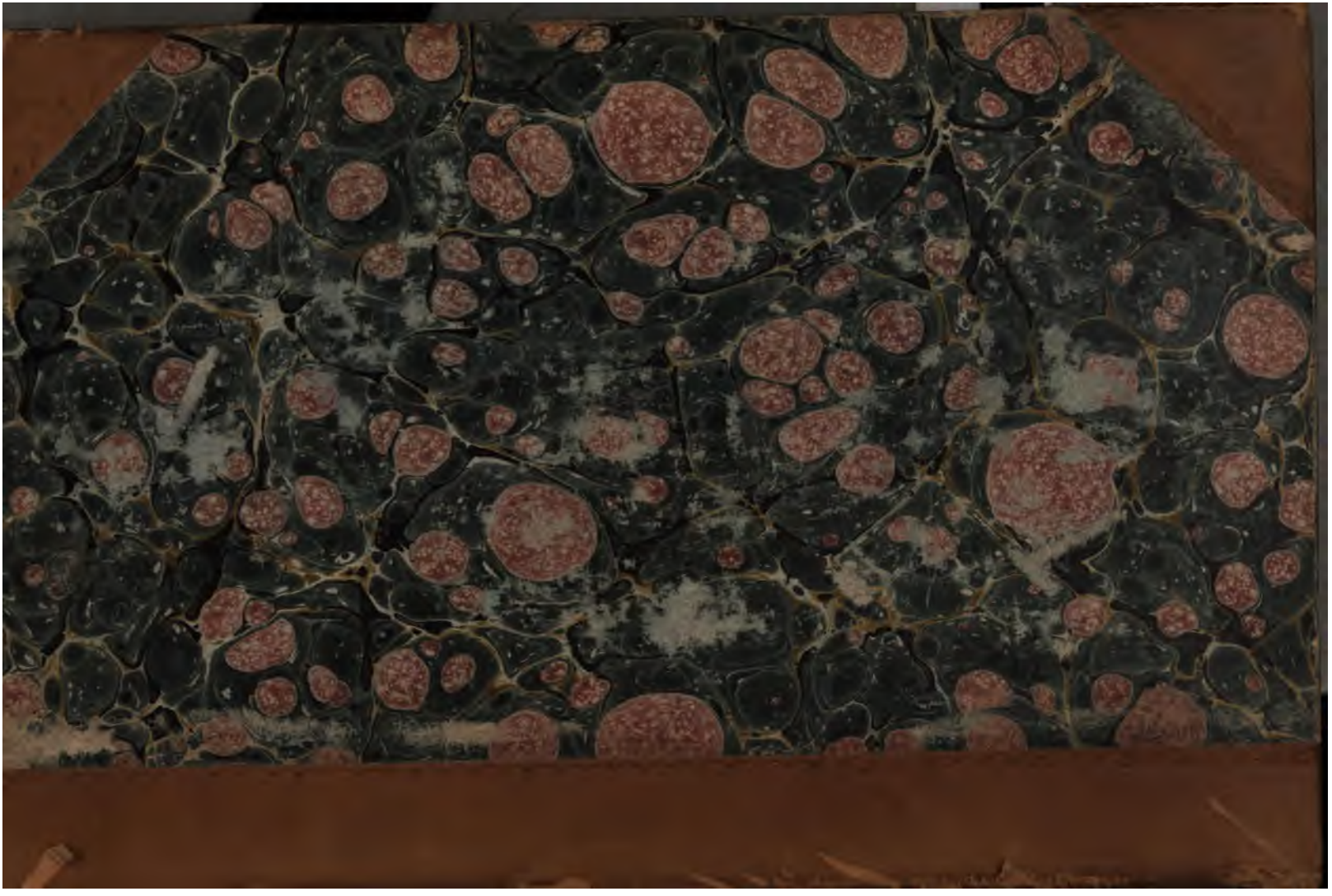

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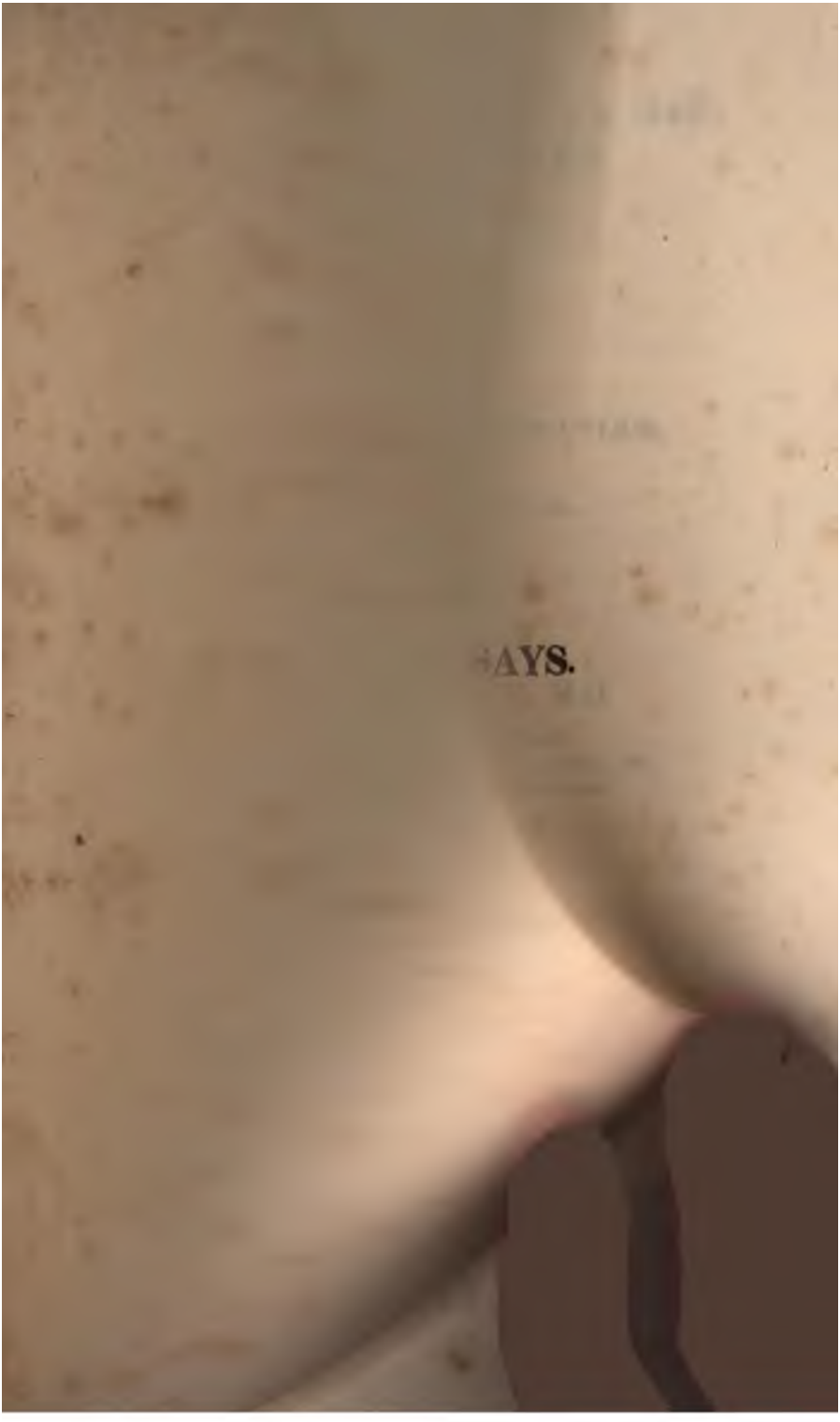

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MEDICAL ESSAYS.

LONDON:
Printed by A. & R. Spottiswoode,
New-Street-Square.

S. H. 1828.

MEDICAL ESSAYS

ON

FEVER,

INFLAMMATION, RHEUMATISM,

DISEASES OF THE HEART, &c.

BY JOSEPH BROWN, M.D.

OF THE ROYAL COLLEGE OF PHYSICIANS,
OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH, AND
ONE OF THE PHYSICIANS TO THE SUNDERLAND
AND BISHOPWEARMOUTH INFIRMARY.

" I love to pour out all myself, as plain
As downright Shippen or as old Montaigne."

LONDON:

PRINTED FOR

LONGMAN, REES, ORME, BROWN, AND GREEN,

PATERNOSTER-ROW.

1828.

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TO

SIR JAMES M'GRIGOR, Kt.

M.D. F.R.S.

DIRECTOR GENERAL OF THE MEDICAL DEPARTMENT OF THE ARMY.

DEAR SIR,

DID motives of private friendship guide me in the selection of a patron to the Work which is now submitted to the Profession, the undeviating kindness with which you have honoured me for many years, would lead me to you, as the individual to whom it should be most appropriately inscribed.

But reasons of a more public nature influence me to seek for it the protection of the candid friend, under whose auspices was laid the foundation of that experience, of which it is in some degree the record.

As a member of the medical department of the army, I am happy to avail myself of an opportunity of testifying my gratitude for the advantages you have been instrumental in obtaining for it; but especially for the love of science with which your example and precept have equally tended to inspire it.

That you may long continue to preside over that department, and to direct its efforts in the pursuit of knowledge and the alleviation of suffering, is the earnest wish of,

Dear Sir,

Your obliged and obedient Servant,

JOSEPH. BROWN.

Bishopwearmouth, Sunderland,
June 28th, 1828.

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obtrusion on public notice may or may not have occurred, it might seem invidious to say; but I feel convinced that numbers sink into the grave with whom is buried what might have been a valuable legacy to posterity. Indolence or diffidence withholds from the public a great deal that would be of service to it, and to which, perhaps, in strict morality, it has a right. Much of what every man knows must perish with him, for it is incommunicable in print. As a recent instance, with how much greater facility could Laennec have imparted to any one a knowledge of the use of his admirable stethoscope, by personally superintending his study of it, than he can acquire it for himself, aided solely by the published instructions of the inventor. But the greater part of what we learn, amid the toils and anxieties of the most toilsome and anxious of professions, is communicable; and with the present rapid advances of medical science, there is an increasing disposition to its diffusion. A prolific press is inseparable from a progressive science so thronged with votaries as is that of medicine. It should be the object neither of censure nor sarcasm; for it displays the zeal of those votaries, and without zeal they are worthless. The only evils that can result from it are corrected by those periodical guardians of the time, and guides of the taste, of the public, who condense within a few pages the marrow of volumes, and, by

their extracts, enable the reader to judge whether his time and purse are to be taxed for the perusal of the original.

This portion of our press, called into existence by the wants of the community, and supplying it with valuable matter in that condensed form which best suits the limited leisure of the members of our active profession, is certainly the most read, and consequently the most influential. It is to be regretted, that a part of it ministers to other appetites of the public besides its thirst for knowledge. In this the readers are more to blame than the writers: were there not depraved appetites to be fed, the offensive matter which is found in the pages of certain of our periodicals would have no existence. But the press is re-acting on the public mind; it is accelerating the speed of the current whence it derived its own first impulse. It is aggravating the evil, which gave to a certain portion of it the character which it unfortunately possesses, for a vitiated taste "grows by what it 's fed on." We provincials, who dwell remote from the storm which apparently agitates the metropolis, and know nothing of the state of parties or other causes which first engendered it, perhaps see its evils more distinctly than those who are either directing it, or struggling in the midst of it. Some of these evils must be visible enough to all. A conflict with more bone-breaking ma-

terials, originating in a war of words, cannot well be overlooked. But leaving individual instances out of the question, we can contemplate calmly and deplore the general evils which must result from so perturbed a state of society; the destruction of that amenity which ought to characterise the professors of a liberal art, and the withdrawing of the attention from the fair pursuits of science to gladiatorial exhibitions, worthy only of the sturdy polemics of the sixteenth century.

The origin of these evils, I apprehend, is to be found in the besetting sins of medical men, — jealousy of, and illiberality towards, each other. If these vices mainly spring from the overcrowded state of the profession, I would merely suggest to my brethren, that indulging in ill-temper is fostering an additional evil, which does not tend in any degree to diminish the primary one. Correct morals, and that degree of professional skill which a good education and experience impart to a good understanding, will ultimately secure to their possessor a fair share of the public patronage; but should he think this not proportioned to his merits, he may be convinced, that the admission of malignant passions to his breast will aggravate all the evils of his situation. The higher the flight of his ambition, the more he dedicates himself to the science and literature, and the less to the mere trade of the profession, the greater will be his

exemption from petty passions, which rage most violently in petty minds. Let me not be misunderstood. I would not have him, in order to avoid collision with the world, to converse with books only. Man ought to be his chief study; but let him bring to the sick bed all the lights which books can furnish, and when there, let him feel in the object before him the interest which a man of science feels in his favourite pursuit.

Having candidly stated what I consider our most prevalent and deplorable faults, I shall, by way of expiation, vindicate our body from an unmerited charge, which has lately been preferred against it. There are, of course, individual differences and exceptions; but the members of our profession, taken collectively, are certainly far from being imbued with the mercenary spirit which some writers have recently attributed to them. Reasoning *à priori*, we should deem it incredible, that this should be the pervading spirit of the professors of a science eminently calculated to call forth the highest intellectual qualities and finest moral sentiments of our nature; and the tenour of their daily occupations furnishes an ample refutation of the charge. "Of all private professions," says Dr. Paley, in his 'Moral and Political Philosophy,' "that of medicine puts it in a man's power to do the most good at the least expence;" and he adds, that "advice costs nothing, when given to

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those who cannot afford to pay for it." The Doctor has forgotten the expence of time, perhaps the most valuable of human possessions; yet with what freedom is it lavished by all classes of medical men on gratuitous practice! It has been archly observed by a living writer, who has contributed much to the instruction, and more than all others to the amusement, of the public, Sir Walter Scott, that we practise in this way "on mixed principles; partly from kindness, and partly to get our hands in." But allowing the latter ingredient mentioned in this good-tempered raillery to form an ample proportion of the compound, yet will it be found that medical men bestow more labour from kindness than all other classes of the community, the clergy, perhaps, scarcely excepted. Even "getting our hands in," if Sir Walter mean by it, as I presume he does, the attainment of skill in the treatment of disease, is an object highly creditable to us. To suppose medical men utterly indifferent to the accustomed "honoraria" of the profession, would be to suppose themselves and their families exempt from the common wants of our species. It is the exclusive attachment to these, to the neglect of nobler pursuits, which constitutes the question on which I join issue with our accusers.

Had the legislative enactments touching the profession in this country been assailed by any writer, few would have been found hardy enough

to break a lance in their defence. The reply, which an attack upon political institutions, *theoretically* faulty, called forth from a distinguished quarter, constitutes the sum of what can be said for them—notwithstanding their faults, they work well for the community. That no country possesses a more intelligent and more efficient body of medical men than this, is true; but it is less to be ascribed, I humbly apprehend, to enactments favourable to their formation, than to the sterling sense and perseverance of Britons, which *will* triumph over every surmountable obstacle. And though the public may not suffer, it is beyond all question, that the medical body do; at least, they complain, and it will not be difficult to show, that their complaints are not utterly groundless.

It is incredible that England should possess no school of medicine; yet such is the fact: but it is still more incredible, that, being thus circumstanced, she should affix a stigma upon men who cross the border or the channel to acquire that education which she will not give them. To the general merits of our "time-honoured" universities, every Englishman is ready to pay homage, yet no one can say, that they are schools of medicine in any thing like the proper sense of the term; and it is notorious, that those who take degrees in physic there, acquire their

medical lore in some one of those institutions which they affect to despise. It may be said, that there is no *injury* to the stigmatized class—that a man of merit has only to take the licence of the college, and he is as well received in our metropolis and its suburbs as if he were a fellow. If there is no injury, there is what is more grievous—insult; and insult offered to the whole world; though, from circumstances, more frequently received by Scotland than any other country. I am not indifferent to the thousand titles to pre-eminence among nations possessed by my country —

Ταύτης τοι γενεῆς τε καὶ αἵματος εὔχομαι εἶναι —

yet I wish Englishmen would be content to walk quietly through the world, and not insist upon stalking over it, unmindful whom they tread upon. Those titles to pre-eminence belong, not exclusively to England, but to the united empire, of which Scotland is certainly not the least gifted and intellectual portion.

If, by the distinction of *castes*, the inferiority of the licentiates in talents and attainments is meant to be implied (an inferiority which is notoriously far from being established), then the case is dreadful indeed; for we must presume that His Majesty's lieges of Edinburgh, for instance, are as much the objects of his paternal solicitude as those of London or any other part of his dominions, yet are their lives intrusted to the

care of graduates of their present benighted university. If that university cannot supply "viri satis docti et *graves*," why do not His Majesty's responsible advisers suggest the propriety of founding an institution in some portion of his northern dominions, which shall furnish men sufficiently *rueful* for all professional purposes? In conversation, a Cambridge graduate remarked to me, with equal good sense and good breeding,—for he was aware that Edinburgh had sent me forth,—that Oxford and Trinity College Dublin were the only schools they deigned to pray for. Was there ever so unchristian-like an omission as that of the northern universities? The enactments of the London College certainly prove, that the Scotch schools peculiarly require the prayers of the faithful.

It were much to be desired, that some remedy could be found for these evils, insults, and the broils which result from them. All would be avoided were there one general system of medical instruction established throughout the empire, modified according to the pursuits of the two great classes into which our body is divided; a division of labour which is advantageous to the public, and which is sufficiently minute for every practical purpose. The ultimate object of the system should be the benefit of the community: its immediate one the securing to medical men the kind and degree of

education best adapted to the attainment of the former. To each class a certain quantity of knowledge is requisite before they can embark beneficially or even safely in their respective duties. Then, how happens it that the education which supplies this knowledge is left, as it were, to mere accident, and that it varies in every school in the empire? Common sense dictates, that it should be the same in each institution; and that its quantity should be fixed by the legislature, and not left to the discretion of corporate bodies, which, their own enactments prove, differ in their estimates of the requisite amount. Though the only mode of procuring that uniformity of education to each class which is desirable is by legislative enactment, yet it is not clear whence the legislature is to derive the knowledge of the requisite quantity. The supplying it with this information involves a serious responsibility, which should not be thrown upon one or two individuals. Neither should the decision of the amount rest with any existing corporate body, which could not dictate to all others without exciting feelings better dormant. A medical committee, assembled for the express purpose, would, perhaps, be the most eligible mode; and upon their advice legislative enactments might be founded which should specify the branches of knowledge with which medical men are expected to be conversant, and

the portion of time to be dedicated to the acquirement of each branch by the two classes of the profession. The period, too, of surgeons' apprenticeships should be fixed by them. It is unnecessary to point out the absurdity of dedicating five years to the learning of pharmacy. Even the quantity of literary attainment which should precede professional study, might fall advantageously under their cognizance. It is desirable that the estimate of this should be tolerably high. Besides the additional dignity which respectable literary attainments bestow on the professional character, the general improvement of the intellectual powers by early study renders their possessor more fitted for the successful pursuit of medical science.

To insist that England should be furnished with well-regulated schools of medicine would be to dwell on a truism; and it is equally obvious, that as they would be destined to furnish practitioners to one community, the same system should pervade them all. Were Oxford and Cambridge supplied "with all appliances and means to boot," she would already be in possession of two. The reasons for selecting London as the site of a third are so obvious, that it would be superfluous to point them out; whilst one of the large towns in the north of England would furnish an eligible situation for a fourth, if it were not thought that the proximity of the

existing Scotch schools, to be modelled on the general plan, superseded the necessity of such an establishment.

Were a general system of tuition instituted, it is clear that all distinctions between practitioners, excepting that impressed by the hand of nature, and the recognized and useful division into physicians and surgeons, would cease, and there would be a prospect of harmony being restored to the profession.

I have heard it remarked, and I believe justly, that lectures are not always correctly designated. For instance, a teacher may term his course, "Lectures on Chemistry, Materia Medica, and Pharmacy," whilst, in fact, the first science only is fully treated of; the two adjuncts being but briefly touched upon, or passed over altogether. Indeed, in the time occupied by the course, justice could not be done to these three branches of knowledge. Anatomy and surgery are sometimes huddled together in the same manner. Hence those whose duty it is to furnish testimonials of study find a difficulty in ascertaining the precise kind and amount of instruction that the candidate has received. Of course, legislative enactments should secure the public from this ambiguity of nomenclature.

There is one grievance which presses so severely on the prospective interests of the profession, as almost to threaten its extinction as a

science useful to man, which I will touch upon at the risk of wearying or even offending the reader—the difficulty, or rather impossibility, of obtaining subjects for anatomical purposes. The public are quite as much parties in this cause as medical men. To a state such as ours, good physicians and surgeons are almost as necessary as bread-corn; and without anatomy you must have bad physicians, and no surgeons at all. The popular clamour is the great obstacle to the successful prosecution of this branch of science; and it has been occasionally aggravated, I am afraid, by those whose duty it was to allay it. The language held by magistrates, when an unknown and unclaimed body has been detected in its transit northward, would lead the mob to believe that there was something abstractedly criminal in a practice to which many of themselves, probably, owed the preservation of life or limb. Now, in the case of an unknown and unclaimed body, there is no injury. When injury occurs, it is always to the feelings of relations, who cannot, of course, be expected to look on unmoved, when the body of one dear to them in life is torn from the grave; and no medical man wishes to cultivate science at such an expence of feeling. We are not such barbarians as the well-known diatribe of a certain philozootic senator, Mr. Martin of Galway, against Magendie, might lead the world to suppose us; an harangue

which was, of course, perfectly consistent in a country in which cod is never crimped, and foxes are never hunted.

When a matter not only of necessity but even of luxury is made altogether contraband, smuggling, with vice and disorder in its train, follows. The high prices which positive interdiction begets, tempt men to practices, however dangerous or however vicious, to attain them. These high prices are now offered by the schools of anatomy, and must give rise to the revolting scenes connected with the occupation of *body-snatching*, which can be effectually put a stop to only by the legislature supplying what, I beg to repeat, is a positive want of the community. Additional penal statutes, or the more rigid enforcement of existing ones, will but increase the evil. If the bodies of *all* executed criminals, and of all who die unclaimed in public hospitals, were allowed to the schools of anatomy, much would be done for its remedy.

The public mind will ere long, I hope, be enlightened in this respect, as I now perceive the dawn of such a light in the more ready acquiescence in *post mortem* examinations for pathological objects. Should this increasing conviction of their propriety, which I perceive in the district where I reside, be general throughout the country, then may we hope that one of the most considerable obstacles to the progress of

medical science will be removed. It is impossible not to perceive how much we are outstripped by our neighbours the French in pathological anatomy, which is so important when cultivated in connection with semeiology. By watching attentively the symptoms, those "evidences of things unseen;" reasoning from them to the morbid process going on in the interior; viewing and reasoning upon the effects of remedies on this process; anticipating, in case of fatality, its product, the organic change; and confirming or correcting this anticipation by dissection, an impression is made on the mind which is ineffaceable, so long as the intellectual faculties retain their vigour, and which may be profitably resorted to occasionally for cure, and uniformly for diagnosis and prognosis, in hundreds of other cases. It will be perceived how important a link is wrenched from the chain, if the dissection be denied; and how much it behoves all cultivators of medical science to be earnest in their entreaties that they should not be deprived of it. In the respectable classes of society little difficulty is now experienced; and let us hope that the "march of mind," to use a phrase which has been a good deal sneered at, but which no sneer can deprive of its truth, will ere long give us equal facilities in those abodes of exquisite wretchedness, where poverty is added to disease.

This anxiety to discover the morbid change left by fatal disease has been objected to, and by no one more decidedly than by Dr. Yeats. * If I understand his objection rightly, it is founded on two reasons; firstly, that the discovery is "unattended with much beneficial result of practical utility in the alleviation of pain and mitigation of disease;" and, secondly, that, by pathological investigations, the mind is led astray from the diligent observation of symptoms.

The first reason of objection is evidently founded on the assumption that the sole occupation of the physician is the alleviation of pain, and mitigation of disease. But besides these, his more immediate and important functions, there are others, in which his own satisfaction and the comfort of his patients and their friends are materially concerned — those of accurately distinguishing diseases, and predicting their results. Now it is obvious that every thing which favours his attainment of a precise knowledge of the maladies he treats, must conduce to the proper performance of this portion of his duties. It is true, that we frequently detect internal changes which we cannot cure, and scarcely can

* Vide in Journal of Science, Literature, &c. extracts from lectures delivered at the Royal College of Physicians in May 1827, founded by Dr. William Crone, chiefly on the structure, functions, and some diseases of the colon, &c., by G. D. Yeats, M.D. F.R.S., &c.

mitigate; but if any thing will enable us to accomplish either the one object or the other, it is an accurate knowledge of the enemy we have to combat: thus precise ideas may aid, and certainly cannot mar, our principal office. A medical man is unceasingly occupied in drawing conclusions from the phenomena of the diseased frame to the interior process of which these are the signs; and is it a thing of no value to have that which was belief converted into certainty, or that which was error corrected by examining the visible and palpable result of this process? May not this certainty or this correction be usefully applied to the solution of the problem involved in the same assemblage of symptoms, should it be again presented to his observation? I am convinced that there is not a medical man breathing who has not felt the beneficial effect of such investigations on his own mind; that, by their means, what in former cases had been doubt, has become in subsequent ones decision.

Dr. Yeats has furnished us with the means of judging him out of his own mouth. "A lady," says he, "was attended by an *eastern* physician for a supposed disease of the liver: he had known her in India, and she had taken a good deal of mercury at different times. I was called in a week or ten days before she died. I ventured to say, that, although I could not

tell what was the precise nature of the complaint, there was no organic disease of the liver. On opening the body after death, which was done at my particular request, the liver was discovered quite sound; death appeared to have been caused by some disease of the spleen, which was extremely soft, and blood was found effused in its substance from ruptured vessels." Is it not obvious that Dr. Dick, the physician alluded to by Dr. Yeats, if a man of tolerable understanding, would not on future occasions, should they occur, consider the symptoms presented by this lady as indicative of liver disease, and would abstain from harassing and breaking down the strength of the system by the use or rather the abuse of mercury? It may be observed, that one of the lessons of medical experience, using that term in its most comprehensive sense, as comprising knowledge whencesoever derived, whether from clinical observation or pathological research, is to abstain from doing what is prejudicial, as well as to apply what is salutary.

The second objection does not appear better founded than the first. The withdrawing of the mind from the necessary attention to symptoms is so far from being the probable result of the cultivation of morbid anatomy, that nothing appears more calculated to rouse the attention to a diligent investigation of them, and the judgment to correct reasoning from them (and

the latter presumes the former), than the prospect of the physician's conclusions being confirmed or refuted by "dead men's telling tales." That, in some peculiarly-constructed minds, there may not have been a sort of segregation of morbid anatomy from semeiology, I will not attempt to deny. They ought to be cultivated in conjunction; and if any one fails so to cultivate them, it should be imputed not to the science, but to the man. The reasoning which Dr. Yeats applies to pathological research, would lead to the abolition of religion on account of the massacre of St. Bartholomew's, and of all human learning, because its abuses have furnished a theme for satirists from Rabelais to Sterne.

Some of the Doctor's objections to anatomy generally are perfectly astounding, as proceeding from a man of his talent. What shall we say to the following? "What analogy have we discovered between the internal coat of the intestines and the effects of jalap, of scammony, or rhubarb, or aloes, notwithstanding the excellent knowledge derived from the labours of Peyer, of Malpighi, of Lieberkuhn, and of Brunner? What between chylopoietic derangement and blue pill? between squill and certain diseased states of the thoracic contents? Is there any thing in the structure or appearance of the nerves which leads to the use or the

knowledge of the effects of opium?" Who ever dreamed that there was any such analogy as is here interrogatively refuted? The same reasoning would induce us to refuse the aid of other subsidiary sciences, that of chemistry for instance; for no analysis, however minute, can tell us any thing of the effects of one of the remedies mentioned, which experience alone has taught, or ever can teach; and one of the most curious inquiries in the history of our art, is into that experimental process by which we have obtained that knowledge of the virtues of drugs, which no reasoning *à priori* could throw the slightest light upon. But that anatomy is silent respecting the *modus operandi* of jalap, is assuredly no objection to its being zealously cultivated by medical men. Is it any imputation on the assistance it actually affords us, that it cannot perform the office of the experience of ages? The powers of that mind must be limited indeed which shall find the cultivation of healthy and morbid anatomy an obstacle to that "clinical inquiry into the modification or counteraction of symptoms by which a Sydenham and a Heberden rose to merited fame*;" and this wilful closing of the eyes to the lights which science offers, seems, to use the language which Lord Monboddo employed on a very different oc-

* Journal of Science, Literature, &c. p. 164.

casion, like "feeding on acorns after corn is discovered."

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more favourable specimens which have sprung up in our immediate province. Other sciences have contributed their stores. To mechanics we owe some improvements in the treatment of certain injuries of the joints and of distorted spine; to acoustics the stethoscope, to chemistry that valuable gift the sulphate of quinine, and those useful agents the chlorurets of soda and lime. These are a few, culled at random, of modern improvements, and they are sufficiently important to induce us to wish and hope for more. All human science is now connected with ours, which cannot fail to be a greater blessing than it has hitherto been to mankind.

That our labours are appreciated by the public, the extra-professional attention paid to them sufficiently shows. It has been stated by a high authority on all matters connected with our literature, Dr. James Johnson, that medical works find more purchasers and are more read out of than in the profession. This interest, and the supervision which results from it, are salutary at once to the public and ourselves. To attribute very much of the increased duration of human life, which numerous documents before the public have fully proved, to an amelioration of medical practice directly exerted upon the sick, might be deemed arrogant. Part of this increased duration it will not be considered presumptuous to attribute to such direct influence;

but more is probably to be ascribed to correct ideas of the mode of preserving health, which are diffused from members of the profession through the mass of the community. In this indirect influence, a good deal of our utility consists, especially in the present day, when we are surrounded by a reading and inquiring public. This diffusion of knowledge is of inestimable value to ourselves. We ever find that the more enlightened the patient and his friends, the more sound and cultivated the understandings to which we can appeal, the more ready is the acquiescence in the measures recommended, and the greater the feeling shown for the difficulties and anxieties which are at present, and most probably will ever be, inseparable from the practice of our art. The day of mystery and trick in the profession is gone by in the educated walks of life. Let a man, who is really competent to what he is engaged in, make his appeal not to the weaknesses and prejudices, but to the understandings of those with whom he has to deal. No merit will shelter a medical man from occasional slander and misrepresentation; but it is only from the uneducated or half-educated that he will encounter them. From the really enlightened a deserving man has nothing to dread.

In accordance with the principle which I endeavoured to establish at the commencement of this

knowledge of the effects of opium?" Who ever dreamed that there was any such analogy as is here interrogatively refuted? The same reasoning would induce us to refuse the aid of other subsidiary sciences, that of chemistry for instance; for no analysis, however minute, can tell us any thing of the effects of one of the remedies mentioned, which experience alone has taught, or ever can teach; and one of the most curious inquiries in the history of our art, is into that experimental process by which we have obtained that knowledge of the virtues of drugs, which no reasoning *d priori* could throw the slightest light upon. But that anatomy is silent respecting the *modus operandi* of jalap, is assuredly no objection to its being zealously cultivated by medical men. Is it any imputation on the assistance it actually affords us, that it cannot perform the office of the experience of ages? The powers of that mind must be limited indeed which shall find the cultivation of healthy and morbid anatomy an obstacle to that "clinical inquiry into the modification or counteraction of symptoms by which a Sydenham and a Heberden rose to merited fame *;" and this wilful closing of the eyes to the lights which science offers, seems, to use the language which Lord Monboddo employed on a very different oc-

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The second objection does not appear better founded than the first. The withdrawing of the mind from the necessary attention to symptoms is so far from being the probable result of the cultivation of morbid anatomy, that nothing appears more calculated to rouse the attention to a diligent investigation of them, and the judgment to correct reasoning from them (and

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Some of the Doctor's objections to anatomy generally are perfectly astounding, as proceeding from a man of his talent. What shall we say to the following? "What analogy have we discovered between the internal coat of the intestines and the effects of jalap, of scammony, or rhubarb, or aloes, notwithstanding the excellent knowledge derived from the labours of Peyer, of Malpighi, of Lieberkuhn, and of Brunner? What between chylopoietic derangement and blue pill? between squill and certain diseased states of the thoracic contents? Is there any thing in the structure or appearance of the nerves which leads to the use or the

This anxiety to discover the morbid change left by fatal disease has been objected to, and by no one more decidedly than by Dr. Yeats. * If I understand his objection rightly, it is founded on two reasons; firstly, that the discovery is "unattended with much beneficial result of practical utility in the alleviation of pain and mitigation of disease;" and, secondly, that, by pathological investigations, the mind is led astray from the diligent observation of symptoms.

The first reason of objection is evidently founded on the assumption that the sole occupation of the physician is the alleviation of pain, and mitigation of disease. But besides these, his more immediate and important functions, there are others, in which his own satisfaction and the comfort of his patients and their friends are materially concerned — those of accurately distinguishing diseases, and predicting their results. Now it is obvious that every thing which favours his attainment of a precise knowledge of the maladies he treats, must conduce to the proper performance of this portion of his duties. It is true, that we frequently detect internal changes which we cannot cure, and scarcely can

* Vide in Journal of Science, Literature, &c. extracts from lectures delivered at the Royal College of Physicians in May 1827, founded by Dr. William Crone, chiefly on the structure, functions, and some diseases of the colon, &c., by G. D. Yeats, M.D. F.R.S., &c.

mitigate; but if any thing will enable us to accomplish either the one object or the other, it is an accurate knowledge of the enemy we have to combat: thus precise ideas may aid, and certainly cannot mar, our principal office. A medical man is unceasingly occupied in drawing conclusions from the phenomena of the diseased frame to the interior process of which these are the signs; and is it a thing of no value to have that which was belief converted into certainty, or that which was error corrected by examining the visible and palpable result of this process? May not this certainty or this correction be usefully applied to the solution of the problem involved in the same assemblage of symptoms, should it be again presented to his observation? I am convinced that there is not a medical man breathing who has not felt the beneficial effect of such investigations on his own mind; that, by their means, what in former cases had been doubt, has become in subsequent ones decision.

Dr. Yeats has furnished us with the means of judging him out of his own mouth. "A lady," says he, "was attended by an *eastern* physician for a supposed disease of the liver: he had known her in India, and she had taken a good deal of mercury at different times. I was called in a week or ten days before she died. I ventured to say, that, although I could not

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* Journal of Science, Literature, &c. p. 164.

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There follows some such goodly matter touching the stethoscope, that I cannot refrain from offering a comment upon it. This attention to Dr. Yeats's opinions cannot be construed into harshness, still less into contempt; a feeling which it is impossible to entertain towards a man of his talents and acquirements; but ought to be considered as homage paid to a powerful opponent of modes of study which I conscientiously believe beneficial to mankind. His remarks directly applied to the instrument are these: — "We endeavour to gain an acoustic knowledge of the state of parts by mediate auscultation with the stethoscope, thus gauging the depth, measuring the length and breadth, taking the latitude and longitude, diving into the density of thickened parts, and circumscribing by chart and by scale the extent and dimensions of adhesions and fluid extravasations; a proceeding derogatory to medical philosophy, and not so *beneficially* useful in its ultimate practical application as the praises bestowed upon it would lead us to believe." If I may be allowed to make the remark *pace tanti viri*, I will venture to suggest that the last clause of this sentence is illogical. In the last member of it, the utility to a certain extent of the instrument is implied, when it is declared not to be "so useful as the praises

"the sign to the thing signified," frequently resembles rather the sagacity by which the consummate man of the world *feels* his way through the mazes of a political intrigue than the direct inference drawn in more exact sciences. Our minds are frequently influenced by shades of difference in symptoms so minute as to be scarcely communicable by language; indeed, it has appeared to me that when attempts at such communication have been made, failure has been a frequent result. No living writer has laboured more than Dr. Marshall Hall to "body forth" these finer shades; but all my respect for his talent and industry (and it is very sincere) cannot lead me to acknowledge that he has uniformly attained his object. But I must qualify what may be construed into an over-strained eulogium on the professors of medicine, by conceding that great medical skill may be attained by minds of ordinary powers unceasingly concentrated on the same class of objects. It is the *tact* which this concentration imparts, which gives its value to experience, a quality on which the public insists too much if it prefer the ignorant old man to the intelligent young one; but it acts rightly if, in balancing between minds equally endowed by nature and education, it incline to the more experienced. Every medical man must have traced the influence of experience on his own mind, from the period of his exchang-

and will hence derive assistance, in addition to that which general symptoms afford, in the application of local remedies, and the prevention of irremediable morbid change. There is nothing in this process calculated to seduce the mind from the contemplation of the assemblage of symptoms; it furnishes additional ones, and those certainly not useless, to that assemblage. Symptoms may be classed under two heads; they are either feelings of which the patient is conscious, or signs perceptible to the medical attendant. Stethoscopic indications belong to the second of these classes. They are not, as Dr. Yeats seems to imagine, "part and parcel" of pathological anatomy, but of semeiology. The senses of sight and touch have always been permitted instruments in investigating diseases (though Dr. Yeats does not seem to think the employment of the latter very justifiable); and why should we not avail ourselves of the instrumentality of the ear, if it can aid our researches, and why should attention to the signs it furnishes seduce us from a due regard to the indications presented by the other senses? So far from its doing so, I have ever observed that those who are most anxious to avail themselves of the additional information which this instrument affords, are most attentive to the phenomena ordinarily observed. Indeed, it is to be presumed that the same activity of mind, whether resulting from

more favourable specimens which have sprung up in our immediate province. Other sciences have contributed their stores. To mechanics we owe some improvements in the treatment of certain injuries of the joints and of distorted spine; to acoustics the stethoscope, to chemistry that valuable gift the sulphate of quinine, and those useful agents the chlorurets of soda and lime. These are a few, culled at random, of modern improvements, and they are sufficiently important to induce us to wish and hope for more. All human science is now connected with ours, which cannot fail to be a greater blessing than it has hitherto been to mankind.

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bestowed upon it would lead us to believe." Then if useful at all, how can it be "derogatory to medical philosophy?" Dr. Yeats will at once avow, that nothing which arms us with additional power to mitigate human suffering is "derogatory to medical philosophy," and will acknowledge that he has failed rather as a logician than as a philanthropist.

Throughout the whole of the passage, from which the sentence just quoted is extracted, there runs an accusation against the stethoscope of being an auxiliary exclusively of morbid anatomy, not of clinical observation; that it may show us an ultimate morbid change, but can throw no light on the diseased vital processes which precede that change, and that hence it seduces the student from attention to symptoms. As this is a broad accusation, capable of being controverted without descending into minutiæ, which would be misplaced here, and as I have heard it from other quarters, I shall bestow a few observations upon it.

In the case of Pneumonia, to select a familiar example, in which the practitioner will apply it only because his attention to general indications leads him to conclude that disease of the chest exists, he will be able to detect the complaint from its very commencement, and the precise portion of lung occupied by it, of which the situation of the pain does not always inform him;

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love of science in the abstract, conscientious principle, or those more mixed motives by which human beings are often influenced, which excites us to attention to the one, will not allow us to slumber over the other.

All this is but the continuance of the dispute, two thousand years old, between the rationalists and the empirics, of which the curious in such matters may find an account in the first book of Celsus. No *rational* man would depreciate close clinical observation; but it would be empirical, in the offensive sense of the term, to deprive ourselves of the aid of reason and science.

This perhaps tedious disquisition on certain measures which I think eminently calculated to give precision to our art, has arisen from an anxious wish that those fluctuations of opinion, of which we are all conscious, and which tend more than any other circumstance to lessen us in the eyes of the public, should ultimately cease. There are fashions, it is said, in physic; and I grant that there are: but be it remembered, that this reproach applies to every branch of natural knowledge in certain stages of its progress. I need but recall the reveries of the chemists from Paracelsus to Stahl in proof of the assertion. But the fluctuations of fashion have ceased in their science, since it was founded on a cautious induction from facts by

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ing "learned halls" for the bustle of the world. It was a saying of a celebrated moralist and lexicographer, that he had made up his little packet of opinions, and could not take the trouble to unfold it again. A medical man must be content to unfold his packet pretty frequently before he can form one worth keeping.

But it would be giving too dark a view of our art, to consider it *all* as mere fashion which passeth away. Neither is it all the incommunicable result of each individual's experience. We have our fixed and communicable principles, and should the zeal which at present animates us endure and be directed, to use the language of Bacon, to axioms cautiously derived from individual examples, rather than to abstract and useless generalities, the number of these will without doubt increase. The fruit it has already borne is not of an uniform quality, I admit, yet comprises much that is excellent, and of a nature to encourage hope for the future. The more rational treatment of fever; that of inflammation more decided and successful, and more precise notions on the distinction of this from irritation; more definite ideas regarding diseases of the chest; the better understanding and management of those of the digestive function; the improvement of what may be termed medical statistics, or the knowledge of the actual influence of disease on population; are among the

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In accordance with the principle which I endeavoured to establish at the commencement of this

somewhat discursive preface, that every medical man, who has been long in extensive practice, has something to communicate not altogether undeserving attention, the following Essays will constitute a series of monographs on some diseases with which circumstances have rendered me abundantly familiar. Though professedly original, their nature does not preclude a reference to the opinions of others for approval or refutation. Both, when they occur, shall be expressed with the utmost candour. Should the ideas of any writer have found their way into these pages without acknowledgment, it has been unwittingly. "Faded ideas," says an author of distinguished genius*, "float in the memory like half-forgotten dreams, till the mind in its warmest enjoyments becomes suspicious of its offspring, and doubts whether it have created or adopted." Such misgivings will occasionally occur to all. Every precaution has been used to avoid the appropriation of the thoughts or words of another, excepting as to the former, where, being recognized truths of medicine, they may be considered public property. For any faults of method or style, I have to put in the plea, which medical men rarely offer in vain, that they have been composed mid the fatigue and bustle of the occupations which have furnished their materials.

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and in parts of the earth where it is more abundantly generated than in this island, has long been recognised. Here, for a considerable length of time, its existence had not been inferred from its acknowledged products, excepting in certain marshy, or, as they are properly termed, aguish districts. It is true that some members of the profession have been disposed to refer to its influence typhus fever; but this may be considered rather as a speculation than as an established truth. Within the last three or four years, however, it has made itself discernible in various parts of the kingdom, supposed to be not usually subject to its influence, by its ordinary and acknowledged indications. As might be supposed, the intruder has not been uniformly recognised as such. When it came undisguised as intermittent, there could be no mistake; but in its more masked character of remittent, it has been occasionally confounded with our old familiar typhus, and controversies have hence arisen, in which some ink has been, not very good-temperedly, and consequently not very profitably, shed. Traces of the operation of this atmospheric poison have been very discernible within the last three or four years, in the north-eastern part of the county of Durham, which had long been unaccustomed to its *acknowledged* effects, and facts illustrative of this operation were mentioned in a paper hastily written in 1825, which

was published in the Edinburgh Journal of Medical Science. Since that period, I have assiduously watched its progress, and will endeavour to state briefly what has fallen under my notice. During the year 1827, Dr. M'Culloch wrote amply and ably on the *general* subject of Malaria. My object is somewhat different; it is to state what has lately occurred to my personal observation, in proof of the activity of this poison, and present an account of such parts of my previous experience of its effects as illustrate its recent diffusion, and at the same time show me to be not incompetent, from want of familiarity with the subject, to give an opinion on a question so important.

Referring to Montfalcon's "Histoire des Marais," or as I can with confidence to the writer previously mentioned, for the natural history of this poison, and for a detailed enumeration of its effects, I shall premise to the account about to be given of my recent personal observation of these effects, merely such a general description of it, as shall make what is to be stated intelligible to an individual previously almost or entirely ignorant of the subject.

Malaria, Marsh Miasma, Paludal Effluvium, and probably the less definite term of Sydenham, constitutio epidemica, designate the same agent, the existence of which is inferred from certain effects produced upon the human frame, and the

source of which is presumed to be the reciprocal action of dead vegetable and animal matter and moisture, because the effects attributed to it are perceived only where such reciprocal action is possible, and because they are very generally more marked and malignant in proportion as circumstances are more favourable to such action, as is exemplified in a marsh or jungle exposed to a high temperature. Of its chemical composition we know nothing; but we now can trace its source, its effects upon animal life, and, to a certain extent, the laws which regulate its diffusion. On these last, Dr. M'Culloch has hazarded some speculations which are deserving attention. The most obvious of its effects are intermittent and remittent fevers, which are the scourges of some of the fairest countries of the earth; but in ordinary seasons are confined in this country, with its temperate climate and advanced cultivation, to certain, as they are properly termed, aguish districts; of which those most conspicuously so are Lincolnshire, Cambridgeshire, some parts of Norfolk and Suffolk, and the Hundreds of Essex.* These are districts

* It appears by a map of the fenny counties of England, published at Amsterdam by Hondius, in 1632, that a very considerable proportion of the counties of Norfolk, Suffolk, Cambridge, with the Isle of Ely, Huntingdon, Northampton, and Lincolnshire, were at that time under water, and though the same geographer premises a long account of the

decidedly marshy; but this poison is not the *exclusive* product of *marshy* territories in the southern latitudes. An extensive plain, the surface of which is literally burnt by the sun, and presents no moisture, seems favourable to its production, provided the soil be rich and not sandy, the flatness precluding that underground draining which will naturally take place in countries of which the face is more irregular, and thus leaving the moisture and organised matter below the surface in circumstances advantageous to that mutual re-action which generates miasma. The Spanish province of Estremadura, and great part of the Alemtejo of Portugal, form an immense plain, and in spring and autumn scarcely could a house be entered there, and this has repeatedly been put to the test of experiment, in which some individual would not be found labouring under ague or remittent fever. This was the case at such distances from the river Guadiana, which intersects the plain, as to acquit its moisture of any share in their production; though the fevers were certainly more general and ma-

" drowned lands," and compliments the proprietors who were then about to drain them, he does not once mention their property of generating intermittent and remittent fevers. The drainage has remedied much of the evil. But in seasons of unusual warmth, ague in these situations may be expected to be very prevalent, and we may even meet it, as this Essay tends to prove, in districts not ordinarily deemed marshy.

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and in parts of the earth where it is more abundantly generated than in this island, has long been recognised. Here, for a considerable length of time, its existence had not been inferred from its acknowledged products, excepting in certain marshy, or, as they are properly termed, aguish districts. It is true that some members of the profession have been disposed to refer to its influence typhus fever; but this may be considered rather as a speculation than as an established truth. Within the last three or four years, however, it has made itself discernible in various parts of the kingdom, supposed to be not usually subject to its influence, by its ordinary and acknowledged indications. As might be supposed, the intruder has not been uniformly recognised as such. When it came undisguised as intermittent, there could be no mistake; but in its more masked character of remittent, it has been occasionally confounded with our old familiar typhus, and controversies have hence arisen, in which some ink has been, not very good-temperedly, and consequently not very profitably, shed. Traces of the operation of this atmospheric poison have been very discernible within the last three or four years, in the north-eastern part of the county of Durham, which had long been unaccustomed to its *acknowledged* effects, and facts illustrative of this operation were mentioned in a paper hastily written in 1825, which

was published in the Edinburgh Journal of Medical Science. Since that period, I have assiduously watched its progress, and will endeavour to state briefly what has fallen under my notice. During the year 1827, Dr. M'Culloch wrote amply and ably on the *general* subject of Malaria. My object is somewhat different; it is to state what has lately occurred to my personal observation, in proof of the activity of this poison, and present an account of such parts of my previous experience of its effects as illustrate its recent diffusion, and at the same time show me to be not incompetent, from want of familiarity with the subject, to give an opinion on a question so important.

Referring to Montfalcon's "Histoire des Marais," or as I can with confidence to the writer previously mentioned, for the natural history of this poison, and for a detailed enumeration of its effects, I shall premise to the account about to be given of my recent personal observation of these effects, merely such a general description of it, as shall make what is to be stated intelligible to an individual previously almost or entirely ignorant of the subject.

Malaria, Marsh Miasma, Paludal Effluvium, and probably the less definite term of Sydenham, constitutio epidemica, designate the same agent, the existence of which is inferred from certain effects produced upon the human frame, and the

source of which is presumed to be the reciprocal action of dead vegetable and animal matter and moisture, because the effects attributed to it are perceived only where such reciprocal action is possible, and because they are very generally more marked and malignant in proportion as circumstances are more favourable to such action, as is exemplified in a marsh or jungle exposed to a high temperature. Of its chemical composition we know nothing; but we now can trace its source, its effects upon animal life, and, to a certain extent, the laws which regulate its diffusion. On these last, Dr. M'Culloch has hazarded some speculations which are deserving attention. The most obvious of its effects are intermittent and remittent fevers, which are the scourges of some of the fairest countries of the earth; but in ordinary seasons are confined in this country, with its temperate climate and advanced cultivation, to certain, as they are properly termed, aguish districts; of which those most conspicuously so are Lincolnshire, Cambridgeshire, some parts of Norfolk and Suffolk, and the Hundreds of Essex.* These are districts

* It appears by a map of the fenny counties of England, published at Amsterdam by Hondius, in 1632, that a very considerable proportion of the counties of Norfolk, Suffolk, Cambridge, with the Isle of Ely, Huntingdon, Northampton, and Lincolnshire, were at that time under water, and though the same geographer premises a long account of the

decidedly marshy; but this poison is not the *exclusive* product of *marshy* territories in the southern latitudes. An extensive plain, the surface of which is literally burnt by the sun, and presents no moisture, seems favourable to its production, provided the soil be rich and not sandy, the flatness precluding that underground draining which will naturally take place in countries of which the face is more irregular, and thus leaving the moisture and organised matter below the surface in circumstances advantageous to that mutual re-action which generates miasma. The Spanish province of Estremadura, and great part of the Alemtejo of Portugal, form an immense plain, and in spring and autumn scarcely could a house be entered there, and this has repeatedly been put to the test of experiment, in which some individual would not be found labouring under ague or remittent fever. This was the case at such distances from the river Guadiana, which intersects the plain, as to acquit its moisture of any share in their production; though the fevers were certainly more general and ma-

"drowned lands," and compliments the proprietors who were then about to drain them, he does not once mention their property of generating intermittent and remittent fevers. The drainage has remedied much of the evil. But in seasons of unusual warmth, ague in these situations may be expected to be very prevalent, and we may even meet it, as this Essay tends to prove, in districts not ordinarily deemed marshy.

lignant near the marshy borders of the stream. And in climates ordinarily temperate the same miasma may be generated during seasons of unusual warmth, in situations to which the term marsh is by no means applicable, provided they possess the requisites for its production,—water on or at a little distance below the surface, and dead organised matter undergoing the decomposing process by which it is converted into its original elements. Such generation will be most likely to occur at times when the range of temperature is above the average of the climate at the corresponding season. Whether there is not some inappreciable state of the atmosphere, which favours the production of miasmata more at one season than another, may be matter of question. Some facts, which have fallen under my observation, showing that its abundance is not always in proportion to the usually assigned meteorological causes, would lead us to answer in the affirmative.

Besides the more obvious indications of its action, intermittent and remittent fevers, from which its existence was originally inferred, and from which all medical men (I do not think the sentence too comprehensive) now conclude it to be present, there are other signs of its prevalence not so universally acknowledged. These are, so far as my observations extend, bilious diarrhœa, cholera, dysentery, liver disease, and jaundice;

and Dr. M'Culloch has added to this list rheumatism and neuralgia. Let us consider such of these as bear upon our object, — the illustration of the fevers which have been epidemic during the last three years.

That cholera is owing to malaria might be suspected from its prevailing at the same season, autumn, that the second crop of intermittents springs forth. It has ever appeared to me, that the cause occasionally assigned, mere cold, or this with dampness towards night, after a hot day, was inadequate to its explanation. Were this the cause, think how certain artisans, glassmen, bakers, and others must be harassed by it! It will, I presume, be conceded, that the epidemic cholera of India did not arise from the mere alternation of heat and cold, this cause having been repeatedly in operation without any such effect ensuing; but that it was the product of a certain constitutio epidemica, or, in other words, of malaria. It was unquestionably a much more general and violent disease than that which we observe in this country; but these circumstances may indicate only a wider diffusion and greater intensity of the same cause. But the most decisive proof of cholera's being the effect of malaria is to be found in the fact, that many of the most obstinate cases of remittent fever, which have occurred in this district, commenced with this disease. During the au-

tumn of 1827, I treated a case, which commenced with cholera, passed into remittent fever, and finally into obstinate quartan ague, ultimately cured by sulphate of quinine. I specify this case, because the gradation was striking; but during the two preceding years, the number of cases in which remittent fever commenced with the ordinary symptoms of cholera was very great.

It must have struck all observers, how marked is the action of malaria on the liver, and other abdominal organs. Intractable intermittents are almost uniformly complicated with disease of the liver; and obstruction of this organ with consequent dropsy are the harbingers of death in fatal cases. The affection of the same organ is so manifest in remittent fever, that it has given to the name of this disease its familiar adjunct, *bilious*. The supposition that cholera springs from the same source (malaria) receives strong confirmation from this tendency of the assigned cause. Many forms of diarrhœa probably own a similar origin. Writing in October 1825, I remarked: "Fever is at this moment prevailing, and in most of the cases the hepatic functions have been prominently affected. Many of the cases began with *bilious diarrhœa*, many with cholera."* The history of the Penitentiary endemic might be cited as evidence of the con-

* Edinburgh Journal of Medical Science, No. 1. p. 10.

nexion between almost every grade of bowel complaint and fever, of the source of both being malaria, of the marked action of this poison on the liver, and, either consecutively or in conjunction, on other abdominal organs. The same remark is applicable to the "Fièvre entero-mésentérique," which prevailed in Paris during the years 1811, 1812, and 1813, and which has been described by Petit and Serres. In this epidemy many of the cases began with diarrhœa, which in the progress of the disease assumed the form of dysentery with its mucous or bloody stools, griping, and tenesmus.* Indeed, so closely allied are most of the forms of bowel complaint, that if one be distinctly traced to an ascertained cause, the others need not detain us long.

Dysentery shall be lightly passed over, because this form of disorder did not occur during the seasons of which the diseases form our present subject of examination. Those who are familiar with this disease are aware how constantly the symptoms of diarrhœa terminate in those of dysentery. Those who have little acquaintance with it, and may wish for published

* Compare Buel, New York Medical Repository, vol. 1. p. 439., and Sydenham, p. 45. "Et sanè dysenteria de quâ agitur, ipsissima illà febris est; hoc tantum discrimine, quod introvertatur, et in intestina se exonerans per eadem viam sibi faciat."

authority, I shall content myself with referring to two writers (being unwilling to multiply authorities on a point sufficiently familiar), Sydenham * and Ballingoall †, for evidence on this head. But leaving all evidence from analogy out of the question, we have direct testimony, furnished by numbers of experienced writers, that dysentery arises from the same cause as autumnal intermittent and remittent fevers ‡, and others have adduced testimony equally unequivocal that this cause is malaria. §

The diseases already referred to the influence of malaria probably owe the differences which exist among them to the diversity of the dose, if we may so express ourselves, of the poison, or, it may be, to the influence of certain concomitant agents, as the temperature or hygrometric state of the atmosphere; though, as these circumstances influence the quantity of the poison generated, it is not easy to distribute the respective shares of effect to their immediate and mediate action on the human frame. There is one disease which I am disposed to ascribe to its slow operation in a dilute state, viz. jaundice.

* Sect. 3. cap. 1. p. 131.

† On Fever, Dysentery, &c. p. 48.

‡ Huxham, "De Aere et Morbis epidemicis," t. 2. p. 176. — Pringle, "Diseases of the Army," p. 253. Sydenham, pp. 45. 174. 201.

§ Buel, New York Medical Repository, v. 1. p. 439. Vaughan, ibid. v. 3. p. 223.

I speak not of it as a concomitant or sequela, as it so frequently is, of intermittent and remittent fever; but as an independent disease, at least, dependent only, as jaundice always is, on disorder of the liver, its ducts, or *perhaps* we may add of the duodenum. The British army marched from Paris into French Flanders in the beginning of 1816. Part of it was stationed in Artois, on the somewhat low and flat banks of the Scheldt. The country being well drained and cultivated, ague was very rare, and remittent fever by no means prevalent; but the slower operation of malaria was visible, during the first two years the army remained there, in the extraordinary number of cases of jaundice which occurred. Many of these proved very intractable. Of their nature and obstinacy, the following case, taken from my register, will probably convey the most accurate idea: —

Joseph Ride, æt. 40, admitted February 8th, 1818, has a very deep, bilious suffusion, complains of pain in his shoulders and arms, with distressing sense of general lassitude: he had pain two or three days ago in the right hypochondre, which was removed by a spontaneous diarrhœa. Colour of urine deeply bilious; that of alvine discharges clayey. He is very costive at present. Tongue furred, pulse 70, and feels sluggish.

℞. Hydrargyro Submuriatis gr. viij.
Extracti Colocynth. comp. gr. xij. M. et divide in pilulas statim sumendas.
Posteà sumat Olei Ricini ʒj.

7th. Had two stools yesterday from the pills and oil. They were very clayey. Symptoms generally the same as yesterday.

Admoveantur hypochondrio dextro hirudines sexdecim.
Sumat vespere Pilulæ Hydrargyri gr. v.

8th. Symptoms unchanged. Had one scanty, pale evacuation last night.

℞. Hydrarg. Submuriatis,
Extracti Colocynth. comp. āā. gr. viij. M. et divide in pilulas vespere sumendas, et mane sumat Olei Ricini ʒj.
Descendat in Balneum calidum.

9th. Has had an evacuation of nearly natural appearance.

Repr. Pilulæ ut heri, et iterum in Balneum descendat.

11th. Took castor oil this morning, which produced four bilious evacuations. He complains of pain and stricture across the chest, and he has some cough. Pulse 78, harder and fuller.

Fiat venæsectio ad ʒxvj.
Sumat ter die Pulveris Antimonialis gr. v.

12th. Pain and stricture of chest gone. Had

one stool yesterday, which was of natural appearance.

To take the calomel and colocynth pills, and use the warm bath.

14th. He complains of great lassitude and debility. His complexion, which had begun to clear, is again obscured. He had but one stool yesterday, which was white. Some obscure pain is elicited by pressure on the right hypochondre.

Sumat ter die Pilulæ Hydrarg. gr. v.
Olei Ricini ʒj. statim.
Applicetur hypochond. dextro Emplastrum Lyttæ.

16th. Gums are sore: stools still white.

℞. Infusi Sennæ ʒiv.
Tincturæ Gentianæ comp. ʒij. M. et statim sumatur.

17th. Had one white stool from the physic yesterday. Pulse 58, and weak. No pain. He vomited some bilious matter yesterday. He complains much of thirst.

℞. Extracti Aloës gr. x.
Saponis Hispanici ℈j.
Olei Menthæ, gtt. iij. M. et divide in pilulas vi. quar. sumat ii. ter die superbibendo haustum sequentem: —

℞. Infusi Gentianæ comp. ʒij.
Sodæ Carbonatis gr. x. M.

These medicines were continued with little or no change of symptoms till the 23d, when he had severe pain in the right hypochondre.

Admoveantur hirudines xii. hypochondrio dextro et posteà imponatur Emplastrum Lyttæ.
Sumat statim Olei Ricini ℥j.

25th. Pain has ceased. Stools still clayey. Other symptoms as before.

Utatur Balneo Nitro-Muriatico.
Contr. Pilulæ ex Aloë.

27th. Stools are acquiring daily a more natural appearance; suffusion less deep.

Contr. Balneum Acidum.

March 2d. Is much better. Had yesterday five copious bilious evacuations, though he took but ten grains of aloes, which formerly produced little or no sensible effect. Is this change to be attributed to the acid bath?

From this time the alvine discharges retained their healthy appearance; and he was discharged in good health on the 13th of March.

As our troops became accustomed to the climate, this disposition to jaundice disappeared.

Neuralgia has been mentioned as a product of malaria. This will appear startling to some; but as the following case seems to favour a belief in such causation, and to be consequently in some degree illustrative of the action of this poison in the district, I will detail it. Valeat quantum valere possit! An officer in the army consulted

me in 1827 on account of neuralgia affecting apparently the portio dura of the seventh and second branch of the fifth pair of nerves. Severe pain occupying the left cheek, temple, and portion of the face immediately below the orbit, with copious lachrymation from the eye, and mucous discharge from the corresponding nostril, came on every morning at nine o'clock, and ceased at two P. M., leaving merely a slight sense of soreness in the part. He was asked whether he had ever suffered in the same way before? He replied, once very many years ago, and *that* attack he attributed to cold caught on night piquet at Carrickfergus, in Ireland, during the rebellion. On my inquiring as to the nature of the soil and country about Carrickfergus, he told me it must be marshy, for he remembered being much struck with the appearance of ignis fatuus, a phenomenon he had never before observed. For his present attack (after attention to the primæ viæ) the sulphate of quinine was given with much advantage; but as, after taking it for some time, the pain, though much less severe, still continued to recur in some degree, the carbonate of iron was administered, and he became so far well as to be able to discharge his military duties, having no pain at all, but what he termed a slight uneasiness of the head. Change of air was recommended, and he went for a fortnight into Scotland, to the neighbour-

hood of Stirling, and returned thence in perfect health. Afterwards he informed me, that when cold and damp easterly winds prevailed, to which the barracks in which he is quartered are much exposed, being close to the sea-beach, he felt some uneasiness, but it never amounted to an actual neuralgic attack.

Illustration of the action of malaria during and since 1825.

The district in which the following observations were made is of about ten miles in each of its two diameters, from E. to W. and from N. to S. It possesses a soil of various qualities, clayey, loamy, and chalky, on which sea-wrack is much employed as manure, on a substratum of limestone.* It comprises the populous towns of Sunderland, Bishopwearmouth, and Monkwearmouth, the united population of which is about 35,000, occupying the banks of the Wear, and several villages, some of them large ones, more or less remote from that stream. On the recess of the tide, a considerable quantity of mud, laden with such animal and vegetable recrement as is to be expected from the dense population of its banks, is left exposed. The district contains

* Dr. Wilson seems to suspect that this formation is favourable to the generation of miasmata. Vide Memoirs of West Indian Fever, by James Wilson, M.D. of the Royal Navy.

no marshy land, properly speaking. There are some portions of its surface subject to be overflowed during the winter; one rather considerable three or four miles south-west of the town; but it has never struck me, that the vicinity of this rather swampy land is more unhealthy than other portions of the tract. In ordinary years, ague is scarcely known among us; so little so, that when called to a case of the kind, I invariably ask the patient whether he has not been from home? and the answer is as invariably in the affirmative; frequently that he has been with coals, our staple, to Lincolnshire or Essex. Of the bilious remittent we see as little. Continued fevers are not more prevalent than might be expected from the dense population and dirty state of parts of the town inhabited by the labouring classes. Derangement of the digestive organs is a frequent form of indisposition among all classes; and among those employed about the collieries I have remarked the very frequent occurrence of chronic inflammation and structural disease of of the liver.

In 1825, the summer and autumn of which, it will be recollected, were unusually hot, it was remarked that many cases, which began with bilious diarrhœa and cholera, terminated in fever. During the autumn of the same year, there was an unusual prevalence of jaundice. At the same time I watched carefully a case of fever, that of

a medical friend of considerable scientific attainments, in which was observed that peculiar form of delirium frequent in Spain and Portugal, in which the mind, instead of wandering through a series of apparently unassociated ideas, adheres strongly to one or more thoughts, generally of a very gloomy cast, and impelling almost irresistibly to an attempt at suicide. In this form of delirium the patient does not lie muttering, and apparently unconscious of passing occurrences, but is acutely sensitive, alive to surrounding objects, will reason from them in many respects correctly; but will declare his sense of misery to be so unbearable, that he longs for death, and to attain his object will often display all the cunning of a monomaniac. The only explanation I can venture to suggest of "this mood of mind," is the presence of bile in the circulating mass. The despondency which attends jaundice is familiar to all, and in the present melancholy cases the same cause, the bile diffused through the system, or that derangement of the liver, or its ducts, which produces this diffusion, is acting on a sensorium enfeebled and irritated by fever. In the case I have alluded to as occurring here, which terminated, I regret to say, fatally, a deep bilious tinge pervaded the whole body some days before death, and remained to the close.

In the following year, 1826, the summer of

which was likewise hot, what is esteemed the most unequivocal evidence of malaria, ague, not imported but of home growth, began in the autumn. The cases were numerous, both in the town itself and the adjacent country. Many yielded readily to that valuable remedy, the sulphate of quinine; others were less tractable. They began with the ordinary symptoms of ague, though the apyrexia was never very perfect. In a few days the intermittent paroxysms would either cease or become less regular in their period of recurrence, whilst there was invariably a high range of fever, with a pulse hard, frequent, and full; tongue red and glazed, often with a brown streak in the centre; epigastrium tense and tender on pressure; marks of biliary derangement; urine laden and skin tinged with bile. There were generally two well-marked exacerbations in the twenty-four hours; the one at noon, the other about eight in the evening, terminating in a few hours in a gentle perspiration with remission of symptoms, but by no means complete apyrexia. Bloodletting was more required and better supported than in typhus. The blood drawn was generally cupped, and presented a strong buffy coat; whilst in typhus, when size is exhibited, it is frequently of a blueish tinge, resembling starch and water, and presents a flat or a convex surface.

In some cases the order which has here been

stated was reversed. Fever first appeared, and terminated in ague. In others there was a complication of the two forms. The disease commenced with remittent fever; to this succeeded intermittent, which was followed by remittent again. In all the cases there was extreme jactitation, and not a little of that irritability and despondency of mind which have been remarked as concomitants of bilious fever. This state of mind does not delay its approach till the vital and mental powers are broken down by long continuance of the febrile process; when these are much sunk, the delirium then assumes its usual low, muttering, apathetic form. That peculiar species, of which a description has been attempted, and various grades of which may exist, occurs almost "ab incepto" as part and parcel of the disease.

To one of the best-marked cases of this fever which I witnessed, I was summoned on the first of February 1827. The patient, a gentleman residing in a house situated about two hundred yards from the beach, on the bank of a ravine through which a stream, almost dry during hot weather, flows to the sea, informed me that he had felt unwell for months, but ascribed the violent attack of fever, under which I found him labouring, to having dined with a large party two days before, and having exerted himself, in spite of his feeling of indisposition, to share in

the conviviality and good cheer of his friends. His disease was one of high excitement, with much epigastric tenderness, for which a general bleeding, leeches, and a blister to the pit of the stomach, cathartics, &c. were employed. There were two well-marked exacerbations in the twenty-four hours; the one at noon, the other about eight in the evening. There were strong indications of derangement of the biliary system. Frequently did I remark to the gentleman who attended the case with me, "This is precisely the fever we had in Spain." In a few days the exacerbations, especially the mid-day one, assumed all the appearance of fits of ague. The paroxsym at noon had a strong rigor, followed by high fever, terminating, after profuse sweating, in a state approaching to apyrexia. The evening paroxsym was similar, but less violent. After a few days these were prevented; but they always recurred when the wind blew from the east, to which the house facing the sea is fully exposed, and the effect of which in reproducing ague in those subject to it is matter of notoriety, whether from some peculiarity in its electric state, as Dr. Holland conceives of the siroc, or whether from its wafting additional supplies of malaria from the Netherlands, as Dr. M'Culloch would perhaps suggest, we shall not now pause to inquire. This patient was removed nine miles to the south-west on the fifth

of March, having been for some days free from his aguish fits, but still having upon him a mild degree of remittent fever. He had one violent paroxysm the day after his removal. From that time he had no more. The complaint, subsiding again into the mild remittent form, left him in about a fortnight a feeble convalescent, with that sallowness of complexion and yellowness of conjunctiva so familiar to those who have been in the habit of observing sufferers from attacks of intermittent and remittent fevers.

The appearance of this disease in the latter end of January may seem to militate against its originating from the cause to which I am disposed to ascribe it. But it will be recollected that the patient had felt ill for months previous to the declared attack. The latent period, or that which intervenes between the application of the cause and the full developement of fever, is sometimes of very long duration; so long, as to make it quite supposable that the cause had been applied the preceding autumn. Many cases have I seen in which a serious or fatal attack of fever has appeared to be the completion of a long train of indisposition, during which there had been loss of spirits, flesh, and strength, without any prominent symptom to guide us to the application of a remedy. In these cases the attack frequently supervenes on some sudden exposure or exertion of the frame, to which it is

ascribed, and in part justly so. The cause of fever has been applied, is lurking in the system, and to a certain extent acting upon it; but some such excitement as has been adverted to causes it to produce at the time it does its full effect there. It is supposable that the cause of fever may pass through the system without producing any violent operation. The late excellent Dr. Jackson was of opinion, and apparently on sufficient grounds, that an example of this occurred in his own person. I have reason to think that it has happened to myself. But when the cause has acted so far as to break down the general health and strength, the probability is, that its full effect will be produced; but the time of explosion may be accelerated by some additional excitement, such as the dinner at which my patient was a guest. The medical gentleman, whose case proved fatal in October 1825, had consulted me respecting his indisposition as early as June of that year. His complaints were anomalous: one of them, stricture of the rectum, was imaginary. He felt great languor and debility. He was engaged on a geological work, which, had he lived to complete it, would, I am convinced, have done him much credit. During the summer, he said to me with much feeling, on my inquiring respecting the progress of his work, and urging him to pursue it with vigour: "So far from being able to pursue *that* with

vigour, I can scarcely read the newspaper." He, too, dined with a party of friends. On his way home, he said he heard bells in his ears, and saw lights flashing in his eyes; and, two days after, being requested to visit him, I found him labouring under the disease which terminated his existence.

This latent period sometimes constitutes almost the whole disease which destroys the patient. I have seen several cases in which little has been complained of but a feeling of excessive languor, which has lasted for weeks, and in spite of which the sufferer has pursued to a certain extent his accustomed avocations. He has then lain down and died in a couple of days with all the symptoms of the last stage of fever. Many such cases have I witnessed: one very remarkable in 1825, in the person of a farmer, residing in the village of Whitburn, three miles north of Sunderland. This poor man pined for weeks, occupying himself, so far as his failing strength would permit, in his accustomed pursuits, then took to his bed, and died in less than forty-eight hours.

My observations of the diseases of 1827 were less precise than of those of the preceding years, in consequence of having myself laboured, during great part of it, under severe indisposition. So far as my observations extend, the unequivocal marks of the action of malaria were less striking

than during the two years immediately preceding. A few cases of *indigenous* ague occurred, one of which has already been mentioned, viz. the quartan which commenced with the symptoms of cholera; but none of that peculiar combination of intermittent and remittent (excepting in the beginning of the year) which was so prevalent towards the close of 1826. During the present year, too, there have been some cases of indigenous ague; but none of the complication mentioned.

This complication all experienced medical men would, I believe, regard as the product of malaria; and, if accurate nomenclature and nosological distinctions be things of any value, would declare typhus to be an inappropriate appellation for it. No speculations and even no positive conclusion as to the production of typhus by the same cause would identify the diseases. Many disorders are traced to the agency of the same poison; but regard to precision of language forbids our applying the same designation to all. In writing or conversation we do not confound intermittent with remittent fever, nor either of them with cholera or dysentery. The dose of the poison may be different, or the same dose may produce different effects, according as it is or is not accompanied by certain modifying agents, or applied in certain states of the constitution. There are few words of

which the import is more vague than "typhus." Its misapplication from carelessness, or occasionally from reasons of a more reprehensible nature, is so general, that it is to be wished it were either more strictly defined, or altogether banished from our vocabulary. It is certainly a name inapplicable to the disorder in question, unless it be intended to invest it with an ordinal character, and make it comprehend all fevers but unmixed intermittents.

Fevers are distinguished and named most commonly according to their evident phenomena. An attempt is now making on the Continent to place their nomenclature on a different foundation — on that of the assumed cause of these phenomena. The doctrine on which this innovation is founded will be discussed in a subsequent department of the Essay. The attempt I do not hesitate to pronounce premature, at the appalling risk of calling down upon my own head and the heads of sundry of my unoffending countrymen a torrent of invective from M. Broussais and his associated scribes. The Professor has already honoured me with a very favourable specimen of his talent in this line; but I beg him to be assured that it is not the dread of a repetition of the infliction which leads me to do justice to the pains he has bestowed on the illustration of diseases of the mucous membrane of the stomach and bowels,

nor shall the same feeling lead me to assent to the too extensive application he seems determined to make of his doctrine. We on this side of the Channel are candid and open to conviction; but require to be convinced by fact and argument, and will not be driven by angry vituperation. To engage feeling in a matter purely intellectual is manifestly ill-judged. The opinion that he attempts to make his doctrine too extensively applicable is not peculiar to us. If I mistake not, the immortal work of Laennec contains sufficient evidence that this opinion was shared by at least one of the best spirits among his own countrymen; and proves besides that an undue fondness for this child of his adoption, if not of his creation, has occasionally impaired the accuracy of his judgment. The "ontologie" with which he reproaches the English should be excused in us of Teutonic race, who are notoriously fond of the metaphysical and the abstract; and is at all events a more pardonable mental infirmity than that infallible mark of a superficial mind, a disposition to generalise prematurely from a few facts.

In insisting on the distinction between the fever just described and typhus, I would by no means be understood as denying to this last an origin of the same kind as the former. The season of the year, the autumn, in which it usually commences; its frequently originating

in dirty lanes and alleys strewed with animal and vegetable recrements; its rapid diffusion in close and damp, and suppression in clear frosty weather; and the numbers we often see simultaneously attacked by it, all favour the supposition that it owes its origin, like other febrile and pestilential disorders, to air contaminated by something emanating from the surface of the earth.

Were I to suggest a distinction between typhus and marsh fevers, founded on their etiology, I would say that the gaseous cause of the former was less diffused than that of the latter, that animal matter probably preponderated in the source whence it was engendered, and that the disease itself had a greater proclivity to propagate itself by contagion than those which are more generally and properly regarded as the product of *paludal* effluvia. The greater continuity of the course of typhus, its much less liability to decrements and exacerbations, and the greater degree of prostration of strength and affection of the sensorium which attends it, seem the characteristic marks by which it is distinguished from the latter.

Contagion.

The reader shall not be detained by a long disquisition on this subject, of which the public is weary. So often do we see individuals

of the same family attacked successively by fever, one sickening as another becomes convalescent, that a certain extent of contagious power seems to afford the most rational explanation of all the phenomena of the case. This power is most manifest where cleanliness and ventilation are neglected; but under the most favourable circumstances with respect to these, individuals, such as nurses, brought into long and close communication with the sick, especially in bad cases, are liable to be infected. To positive certainty of this fact we perhaps cannot attain. We rarely can adduce evidence of it, which the subtle casuistry of an opponent may not evade. An example will best illustrate what is meant. A gentleman, not of the profession, but of much general information, and accustomed to medical reading, told me that he thought ague contagious.* On my inquiring

* This was the opinion of Dr. Cleghorn (Diseases of Minorca, third edition, p. 132.), and of the late Dr. John Clark of Newcastle. "Since I was elected physician to the Newcastle Infirmary in May 1788 (says this able practitioner), I have had six instances of agues being communicated from one person to another by contagion. And the same thing has happened to some of the other medical gentlemen in the hospital. The infirmary is situated in a dry airy situation; and agues have not been known to happen in the house, except when other patients have been admitted labouring under the disease. In the cases I have alluded to, the persons infected with the ague were in the high wards, and lay in beds contiguous to patients who

his reason, he replied that one of his sons, when a schoolboy at Darlington in this county, became affected with that disease. He went to bring him home, slept in the town of Darlington, travelled with him in a chaise a distance of thirty-one miles, and in a week became himself the subject of the same complaint. This, it is obvious, is a fact which admits two different explanations; for the gentleman had been probably exposed to the action of the malaria which generated the disease in his son, and certainly to the exhalations from the body of the latter; and such are most of the facts connected with this subject. The common objection, that to attribute a disease to two sources is an unphilosophical multiplication of causes, has really no force. It is true of the itch, for instance, that it may arise from mere filth, and yet be propagated by contact; or if a purulent discharge take place in ophthalmia, especially in crowded barracks, how rapidly does the disease spread to others from the individual in whom it was first engendered, though neither this individual nor those

communicated the distemper." Observations on the Diseases which prevail in long Voyages to Hot Countries, &c., second edition, vol. 1. p. 152. These remarks of Dr. Clark's, and others which occur in the course of his work, tend to show that diseases which are the acknowledged products of malaria have been of not unfrequent occurrence in the district where I am writing.

successively attacked may have laboured under any thing of the kind for years. Many diseases of the skin, as herpes labialis, furnish examples of this sort. The disease just named has been seen to spread through a whole family, though there was not a shadow of reason for supposing that the member of the family first attacked had received it by contagion. The same remark applies to porrigo.

With respect to common causes, such as atmospheric vicissitudes, errors in diet, excessive fatigue, exposure to wet, &c. I shall merely remark, that they appear inadequate to the production of *idiopathic* fever, except in the mode which has already been described, by causing a poison already lurking in the system to produce its full effect there; or by disposing the frame to be more readily acted upon by the general causes, malaria or contagion. In warm climates I have certainly seen an ephemeral or diary fever apparently arise from the stimulus of heat.

Of the Nature of Fever.

A poison being applied to the human frame, and we may add, without risk of being accused of undue rashness, being absorbed into it, produces there certain changes indicated by palpable and visible phenomena. From these the definitions of fever have hitherto been de-

rived, and must continue to be so, until we attain more precise notions of the intimate nature of the changes which they indicate. Till within these few years, the practice adopted in the treatment of the disease was deduced from its obvious symptoms, or was at least uninfluenced by any opinions of their intimate causes that could at all claim the merit of precision. This was virtually the case with the practice of Sydenham, who, though in deference to the Galenical doctrines which still held some sway over the minds of men in the age in which he wrote, he might speculate a little on animal spirits and their ebullition, yet, with that practical sagacity which was his grand characteristic, never allowed these wild flowers of fancy to seduce him from a sober induction from the evident phenomena of the complaint. From the state of pathological science in the 17th century, an adherence to these was the wisest plan he could adopt. If ever he deviated from it, he was influenced by his knowledge of the "constitution" (to use his own expression) prevailing at the time; when he suspected that an inflammatory, dysenteric, or other tendency might lurk under what plainly presented itself to his senses. The result of this relative suggestion was frequently highly creditable to his sagacity. His practice in fever may be stated in few words. He moderated excessive action by bleeding and cathartics at the commencement of the

disease; by enemata during its progress; and supported the sinking powers towards the close by cardiacs and opiates. His prudence was admirably displayed in the accurate proportioning of the power he employed to the end to be attained.

The merit of precision can scarcely be conceded to the hypothesis of Boerhaave, which took the place of the doctrines of Galen in the schools of Europe. That fever is caused solely by the "error loci" of blood too viscid for the calibre of the vessels into which it is introduced, by an accident which no attempt is made to explain, was a mere assumption unsupported by any fact but the occasional occurrence of a buffy coat on the surface of the crassamentum; a fact which warranted no portion of the inference deduced from it. The practice to which this hypothesis obviously led — blood-letting and the administration of diluent drinks — did not materially differ, in many cases, from what would be suggested by the evident phenomena of the disease.

The hypothesis of Boerhaave was superseded in this country, a little more than half a century ago, by the doctrines of Stahl and Hoffman, modified by Dr. Cullen. The first position of this celebrated doctrine, the work of a man whose powerful mind has still left its impress on our reasonings, and perhaps on the practice of some of us, that the energy of the brain is diminished,

is a fair inference from the phenomena of almost every case of idiopathic fever. But the theory which follows, viz. that this diminished energy of the brain, by means of the vis medicatrix naturæ, induces a spasm in the extreme vessels, which increases the action of the heart and arteries, and that this increased action is continued till the energy of the brain from the diminution of which it arose is restored, is an hypothesis so vague, so unsupported by facts, that it has given grounds to suppose that the philosophic mind of its author had engendered it merely to give an appearance of system to his course of instruction, or, to use the expression on the same subject of the late Dr. Gregory, as "a tub for the whale." The diminished energy of the sensorium lessens the action of the heart, whence the paleness and coldness of the surface, which require not the intervention of this assumed spasm to explain them, but arise, whether at the commencement of fever or in the cold fit of ague, from want of nervous energy and of the due propulsion of blood to the capillaries.

Mingled with the broader outline of the Cullenian doctrine, was an indication of cure, which did not by any means necessarily emanate from it, but was apparently derived from the writings of Pringle, and perhaps of Huxham, and which assisted in perpetuating a practice now nearly exploded. This indication was to correct the

tendency to putrefaction of the fluids. The practice which in part resulted from it was the administration of bark and wine. This practice was founded throughout less upon the obvious symptoms of the disease (indeed it was strongly contra-indicated by many of the symptoms) than upon speculations, abundantly vague and indefinite, respecting their supposed causes.

The doctrine of Cullen, for we may pass unnoticed those of Brown and Darwin, which reckoned few but "proselytes of the gate," long reigned paramount in our schools; but for some years previously to any formal theory being substituted in its place, gradually lost its ascendency over the minds of practitioners, who at the bedside of their patients no longer speculated on spasm or a tendency to putrefaction in the fluids, but returned to the practice of Sydenham of moderating action when excessive, and propping the vital powers when evidently sinking. The former portion of this practice was conducted with considerable chariness with regard to the most powerful means of moderating excessive action, blood-letting, though warranted by the practice of Sydenham, and even by the doctrine and precept of Cullen. But notwithstanding this caution, there was evidently a disposition to regard fever as something more related to inflammation than had lately been supposed, whether, as Hufeland imagined, the type of fever had

changed from that of debility and putrescency, or whether, as is more probable, the change was in the minds of those who look beyond the mere surface. Dr. Beddoes, in his "Researches on Fever," was the first in this country who brought forward inflammation *, if not as the cause of its phenomena, at least as an important concomitant of this disease. He selected the abdomen as the seat of this inflammation, and recommended leeches there as its remedy. He did not profess to be perfectly original in this view, but acknowledged his obligations to Germany. Since this period a host of writers have appeared, all possessing considerable merit, and honourably distinguished from those who had preceded them, by close reasoning from the phenomena of the disease to functional or organic changes with which we can beneficially contend, instead of vague speculations on "autocrateias" and "vires medicatrices,"—matters placed beyond our ken, and beyond our control. Besides this closer reasoning from the phenomena of the living

* The antiquity of the inflammatory doctrine of fever is proved by the following words of Celsus, De Medicinâ, lib. i. "Et inflammationem, quam Græci φλεγμονην nominant, excitat, eaque inflammatio talem motum efficit qualis in febre est:" and again, "accedit ad hæc quod ne ipse quidem Erasistratus, qui transfuso in arterias sanguine febrem fieri dicit." On this latter passage, the very learned editor of Celsus, Dr. Milligan, remarks, "Ex hoc loco et paginâ 3. liquet vel antiquissimum Erasistratum cum recentissimo nec indocto Clutterbuck, febris ac inflammationis causam eandem esse credidisse. Quam nihil in medicinâ non tritum."

frame, there has been since this epoch an increasing disposition to examine the organs after death, and to seek there a confirmation or refutation of the inferences drawn from the symptoms. From all this much good has resulted; and if we have to accuse each of these writers of too great partiality to this or that organ, or this or that system of organs — of having sought in one part of our frame what exists in many, — yet from their conjoint labours we have acquired a knowledge of the subject infinitely surpassing what we previously possessed, and to which a continuance of the same spirit of research will give a speedy increase. The most distinguished advocates of the inflammatory hypothesis in this country have been Dr. Clutterbuck, who, in his "Treatise on Fever," ascribed the disease to inflammation of the brain, and Dr. Mills, who has run parallels with much spirit and ingenuity between various forms of fever and inflammations of many organs. Drs. Jackson and Armstrong superadded to the inflammatory doctrine that of congestion, and more recently, in France, Professor Broussais has considered inflammation of the mucous membrane of the stomach and bowels as the "primum mobile" of all fevers. The validity of these doctrines we shall proceed to consider. To all of them the partiality of their views presents an obvious objection. The circulating system is prominently affected in fever; but our frame is

a whole, and if it be true of any malady, to use the language of Dr. Fordyce, that "it is a disease of the whole system," it is true of the disease of which we are at present treating.* The vascular apparatus is one of the parts of our frame of which the disorders and irregularities are most easily cognizable; hence recent inquirers have, perhaps, too much confined their views to it when very laudably occupied in illustrating this obscure subject. None of these writers has displayed more learning and ingenuity than Dr. Clutterbuck, and there is much reason for his attributing to the brain the important part he does in the production of the phenomena of fever; but it is not the sole agent concerned, nor can we concede that inflammation is uniformly the mode of its engagement. That in many examinations of the bodies of those dead in fever, vascular turgescence of this organ and effusion into its ventricles are discovered, is true; but it is likewise true, that many die from fever in whom no such indications of inflammation are

* It will be observed that I have considered inflammation as a disease of the vascular system, this system being most prominently and considerably affected in inflammation, though it is probable that the nerves of a part affected with phlogosis have a share in the production of its *local* symptoms. I beg leave further to remark, that when I subsequently speak of the share which the affection of the nervous system has in producing the phenomena of fever, I mean a state, most commonly an enfeebled one, of the brain and nervous system generally, not the mere local affection of the nerves of a part inflamed.

discovered; and it is likewise the fact, that where these marks of inflammation are detected, indications of inflammatory action in other organs, as in the bronchia or intestinal canal, are rarely wanting; and why is the one form of disorder to be considered essential to the disease, and the other a mere accident? Besides, it is a fact, that thousands have recovered from fever under a plan of treatment not only not calculated to relieve inflammation of the brain, but of a nature positively to aggravate it. Dr. Clutterbuck seems to have erred by conceiving that the brain can be affected only through the medium of the vascular system, and not "*proprio marte*" by the direct agency of the morbific cause.

It is not my wish to regard as insulated the action of the different organs which constitute our frame. The reciprocal dependence of those in question is manifested equally by passions of the mind, the phenomena of disease, and the experiments of physiologists. To adduce the most obvious evidences of a connexion, which has received, though it did not require, the confirmation of physiologists*:— the dependence of the

* Though I have declared, from the conclusive nature of the familiar evidences of this reciprocal influence, that the experiments of physiologists respecting it were superfluous, yet has any *immediate* operation of the brain on the heart's action been disputed both on anatomical and physiological grounds. The reader is referred to the essay of Behrends, "Cor Nervis penitus carere," in Ludwig's Collection, and to pp. 310—319 of the "Physiologie de la Vie et de la Mort"

heart's action on the state of the sensorium is shown in palpitation from terror or lesion of the brain, and reciprocally the dependence of the energy of the brain on a certain degree of vascular tension is demonstrated by syncope from hemorrhage. But it by no means follows that every affection of the sensorium must be the result of vascular disturbance, any more than that every palpitation of the heart must be the product of mental emotion or cerebral lesion. Let the giddiness of the head, the prostration of strength, the tottering gait, the ringing of the ears, the incapacity of attention, which frequently usher in fever, and exist at the time that the vascular system is little disturbed — or, if disturbed, that disturbance is the very reverse of excitement, a sinking of the force of the circulation, from the effect of the diminished energy of the brain on the heart's action — let, I say, these phenomena be observed, and then let us conclude whether it be not quite as consonant with the phenomena of the disease to consider the vascular as the result of the sensorial derangement, as to reverse the order. During the vascular excitement, which constitutes an important part of the state of fever,

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of Bichat. To the essay of Behrends we owe Scarpa's splendid plates of the distribution of the par vagum and great sympathetic nerves on the heart, by which it was triumphantly refuted. The passage in Bichat referred to is perhaps the least accurate portion of the most speculative and least demonstrative of his writings.

undue determination to and actual inflammation of the brain may take place, and is to be guarded against; and by opening the eyes of medical men to such a contingency, Dr. Clutterbuck's work has been useful, as indeed have been the writings of all those who have furnished additional facts respecting the disease, however the value of these facts may have been overrated by the authors.

Had inflammation of the brain, or indeed inflammation of any organ, been the essential and primary link of the chain of phenomena on which all others depended, must not the bark and wine practice have been almost uniformly fatal? It is notorious that it was not so; nay, we are informed, and on authority that cannot well be questioned, that in some epidemics it was eminently successful. May not the non-identity of fever and inflammation be deduced from the recovery of hundreds of poor Irish in 1816 and 1817, without any medical treatment whatsoever? May we not, at least, deduce from these two facts, that no considerable or acute inflammation of any important internal organ exists in those who recover,—that if inflammation exist, it is of a slight or subacute character? But that in many who recover from idiopathic fever very considerable, nay formidable, disease of some kind has existed, there can be no question. Its whole course, the shattered state in which it leaves the system sometimes for months, all prove

that the disease from which the patient has with difficulty, and in a state of extreme debility, emerged, has been of a most formidable kind. Since, then, the patients emerge from fever without treatment, or with treatment which would be actually poisonous in violent or acute phlogosis, is it not obvious, that if inflammation existed, it must have been slight, and could not constitute the *whole* of the very formidable disease with which the patient has had to struggle? Is it not clear from this, that the medical reasoner, who insists that fever is merely inflammation, is overlooking some important phenomena of the disease, or not drawing the legitimate inference from them? The language and reasonings of all of us are sufficiently conclusive of our regarding it as something distinct from inflammation. Called to a case of the disease, attended with bronchial, intestinal, or other phlogosis, we still designate it fever, and speak not of it as bronchitis or enteritis. If fever be, as M. Broussais terms it, an *entity*, by which he seems to mean a *nonentity*, why have we treatises on the subject? — why is the misnomer preserved? He at least, so far as nomenclature is concerned, is consistent with his own doctrine, and I know no one besides that is.

Let us now consider that form of the phlogistic theory which, partly from a considerable portion of talent possessed by its author, M. Broussais, and embodied in the doctrine, but still more

from the zeal displayed in extolling its merits by a host of active partisans, has obtained the most ascendancy over the public mind. Regarding its matter, opinions may be divided; but the manner in which its author has unfortunately chosen to send it forth to the public is calculated to excite but one feeling, that of unmingled reprobation. The tone he assumes towards all those whose writings are not, so far as they go, in perfect parallelism with his own, is insulting in the extreme. He even avows, in the preface to the most systematic of his works, the intention of rendering their writings ridiculous.* This charitable intention is, however, seconded by powers of satire so feeble, that he has been successful in making only one doctrine ridiculous, and that unfortunately is the only doctrine in the world which he had not destined to this enviable distinction. We excuse, nay even admire, a little exuberant warmth in the honest advocate of abstract truth; but with that of M. Broussais (and he displays a great deal) there mingles an air of selfishness; for it is always excited by some notable matter, of which he claims the patent-right; and there is in it a constant reference to the "Moi," to use a favourite term with him, which strips his controversial writings of every semblance of respectability. There is a

* Examen des Doctrines Médicales et des Systèmes de Nosologie, preface, p. 11.

disingenuousness, too, about him, which throws a suspicious shadow over every thing he utters. Does a fact oppose his doctrine, it is kicked out of the way without any ceremony; for he is in the habit of distrusting all facts observed by "erring and prejudiced minds (esprits faux et prévenus)," without apparently perceiving the very questionable predicament in which the extension of such a principle would place all those related by M. Broussais. "The English have *invented* a new disease, under the name of delirium tremens," and cures of this "*pretended* disease, obtained by repeated doses of tincture of opium," have been published in France. "It would be bad manners to give us the *lie;*" but he would like very much to know "what becomes of the *victims* of similar cures," and especially is he desirous of "learning afterwards the state of the corpse." Should a case of the disease occur to this writer, if he will treat it by leeches and gum-water, an opportunity will soon be afforded him of gratifying his curiosity in the latter respect.

Such is the candour which pervades the writings of the professor of Val-de-Grace. Every thing that is not in perfect accordance with the "*doctrine physiologique*" is railed at in set terms. In general he seems to proceed upon the stoical principle of the perfect equality of all deflections from the rule of right. So long as the opinions

of a writer run parallel to his own, it is very well; or, at most, a slight intimation is given, which occasionally ripens into a positive accusation, supported by some comparison of dates, of a little pilfering from the grand repository in the fauxbourg St. Jacques. But the instant deviation is perceptible, the word "ontologie" is pronounced, and woe betides the creator of the abhorred abstraction. M. Broussais would do well to reflect that what he stigmatises by this very felicitous term, for the proprietorship of which he contends as strenuously* as if it were a prize worthy of litigation, is inevitable in diseases "incertæ sedis," the precise nature and site of which are as yet unascertained. No man is an ontologist in ophthalmia, pleurisy, or pneumonia. With regard to those fevers considered essential, we have not attained such precise ideas; but certainly during the last quarter of a century no pains have been spared to explore every path—observation of symptoms, analogy, *post mortem* examination—which leads to a perfect knowledge of the subject. I am convinced that our acquaintance with it has increased, and I will do M. Broussais the justice to add, that he has, *in some degree*, contributed to this increase. But till we know the whole matter, till we have reached some one point (*if such exist?*) whence all the phenomena diverge, and ascertained the

* Op. cit. p. vii.

precise nature of the affection of that point, we must be content to take these as we find them, and do all we can for their alleviation. M. Broussais says he has found this point for us; but unfortunately he has forgot that others can be convinced only by the same means which have furnished him his conviction — the evidence of facts; and that these facts have not been published. If instead of wasting his time in scurrilous abuse of others, and still more nauseous encomiums on himself — in vauntings that the bills of mortality have formally declared in favour of his doctrine, which said vauntings are neutralised by the opposite testimony of M. Laennec, certainly of the two the most likely to give impartial evidence on the matter — he would lay before the public an ample collection of cases, dissections, &c. of fever, the disease regarding which "ontologie" is most general, he would render it an essential service. He makes his appeal to posterity.* He might make it to his contemporaries, and successfully, if it were a valid one, provided he would do it properly. So far as the illustration of fever is concerned, these simple words, "Gentlemen, examine for yourselves the state of the lining of the digestive canal," would comprise all that he has said on the subject worth listening to. Since, then, he leaves us without evidence, it is but rea-

* Examen, &c. p. 423.

sonable that he should allow us time to collect it for ourselves. He perhaps thinks his reasoning ought to suffice for our conversion. This is the point we now proceed to examine.

Previously to entering on this examination, I beg to present some explanation of the tone assumed towards M. Broussais, which is *apparently* inconsistent with sentiments expressed in the Prefatory Essay, and with those which every lover of science should entertain. The inconsistency is only apparent. A regard to those very sentiments, and to the well-being of society, which is their object, demands that assaults like those of M. Broussais should be repelled.

According to his doctrine, all those fevers, hitherto considered essential or idiopathic, depend upon inflammation of the lining of the alimentary canal *, which inflammation uniformly commences in the stomach.† Fever is always the result of irritation of the heart, primary or sympathetic; and this irritation is a shade of inflammation, or carditis.‡ Of course in idiopathic fever (or what has been hitherto deemed such) this carditis is sympathetic of gastro-enteritic inflammation. As every inflammation, wheresoever seated, sufficiently intense to produce fever on reaching the heart, is capable of

* Op. cit. Prop. 137—140. † Ibid. Prop. 131.
‡ Ibid. Prop. 112, 113.

being communicated to the brain, and as it does not change its nature by transmission, inflammation of this organ is an occasional adjunct of idiopathic fever.* This is certainly the most systematic and comprehensive of the phlogistic doctrines of fever that has yet been presented to the public. We shall proceed to examine it in detail.

How does M. Broussais prove his first point, the gastro-enteritis? Firstly, he seems to have been himself much influenced, and to expect others to be equally so, by certain physiological speculations, some of them abundantly vague †;

* Op. cit. Prop. 114.

† Of this vagueness the following is a fair specimen. It is his fifteenth physiological proposition, — "Every stimulation capable of producing a perception in the brain, passes through the whole assemblage of the nervous system of relation. It goes then to be repeated in the mucous membranes, from whence it is again sent back to the centre of perception, which judges of it according to the opinion of the viscus to which the mucous membrane belongs, and which disposes itself to action according to the pleasure or pain it receives; and the object of this action is always to cause the duration and repetition of the impression, or the removal of the cause of it." Let us endeavour to illustrate this by an example, and we will take that of the action of caloric, "the first and most important of stimulants, Prop. 11." An individual enters somewhat cold and benumbed from the external air at 32°. a room warmed we shall suppose to 65°. He is conscious of a pleasing glow, his hands lose their numbness. Here is stimulation of which the brain is conscious. Where is the evidence that this stimulation is transmitted to a mucous membrane? To what mucous

on the sympathies of the mucous membranes, "which are internal senses;" and, secondly, by the phenomena of the disease. Granting to the first ground of his opinion all the value it merits, and every medical man must be aware of the importance of these sympathies, his physiological arguments will not obtain to his doctrine a convert worth having. It is by no means a corollary from the fact of the alimentary canal's being the centre of extensive sympathies, that all the phenomena of fever are emanations from this focus.

Such an example of reasoning in a circle is nowhere to be found as in his second mode of establishing his doctrine. The process is abundantly simple. It is merely to assume, that every symptom which a fever presents belongs to acute gastro-enteritis. Are there "anorexia, thirst, redness of the point and circumference of the tongue, pain of the head, pains and inaptitude for exercise in the muscles of locomotion;" these are "the signs of gastro-enteritis." If the scene change to "increased prostration, fuliginous state of the tongue, fœtor, stupor, acrid heat, livid colour, subsul-

membrane is it sent? What opinion does the organ form of it? What information does it transmit to the brain? Can it be expected that reasonable beings are to model their opinions and practice in disease on such random speculations as these!

tus tendinum, smallness of the pulse," these symptoms prove only "an augmentation of this same gastro-enteritis." * Should there be "extraordinary delirium, transient or permanent convulsions in the external muscles, alteration of the sensitive faculties, pervigilium with agitation or coma more or less profound, spasms, constrictions referred to the different viscera," still is it gastro-enteritis, with or *without* inflammation of the brain. † Should the symptoms be those of the plague, this is "gastro-enteritis, with phlogoses of the skin, which are always gangrenous, and inflammations of the lymphatic glands, which are often not so." ‡ It is obvious, that if a proceeding like this were admitted as valid reasoning, every theorist might prove his doctrine, whatsoever that might be. The same phenomena have been viewed through a series of ages by men of talent equal to that of M. Broussais, every ingenuity has been employed upon them, and conclusions drawn very different from his own.

Thus, then, are we thrown back upon our own researches for the *uniform* existence of this lesion, and upon our own reasonings for the importance to be attached to it. It is true, that M. Broussais asserts, in a general way, the uni-

* Op. cit. p. 403. † Ibid. p. 420—425.
‡ Ibid. p. 432.

versality of the lesion*; but what we should really have thanked him for would have been a series of dissections sufficiently ample to prove it, and a statement in each case of the degree of its intensity, that we might form a fair conclusion as to its share in the production of the symptoms. But this would have been an abandonment of the physiological doctrine for pathological anatomy, which would have cost too severe a sacrifice to the self-love of the author. Yet are we indebted to him for having called our attention to a point too much neglected in our perquisitions. It is true, that many writers had done so before him, but we are obliged to him who merely repeats a wholesome truth. The fact of the existence of the affection is important, and the proof of its uniform presence would render it still more so; but even then we ought to regard it only as a material fact in the case, and must examine much and long before we leap to the conclusion, that it is the source of all the phenomena.

We now reach the second point of this theory of fever—the affection of the heart. Do the phenomena of fever warrant our concluding that carditis exists? We may very properly answer, no. M. Broussais defines fever to be "an acceleration of the *course* of the blood, produced

* Op. cit. p. 423.

by that of the contractions of the heart, with increase of calorification and lesion of the principal functions."* This definition is as good as any; it is the same as that of Cullen, with the omission of the words "post horrorem" at the commencement, and "viribus artuum præsertim imminutis" at the close, yet is it not correct. This is no imputation on its author. He has failed where all others have failed before him. But numerous are the cases of fever, in which there is no acceleration of the pulse, and no increase of calorification. Indeed, these functions are occasionally in a condition the very opposite of that stated. I attended a case lately, in which the pulse did not exceed eighty for the first fortnight, but became a hundred and forty before the close of the disease. M. Broussais would elude this difficulty by considering such cases simply gastro-enteritis till the pulse became frequent, then carditis, he would say, is added to the former disease. But is it reasonable to infer the existence of carditis from mere acceleration of the pulse? The ready answer will be—no: an answer so manifestly correct, that we need not pause to vindicate it.

Do the sequelæ of the disease show carditis to have existed? Were it uniformly the immediate cause of fever, would not chronic affection of the

* Op. cit. p. 399.

heart prove the frequent consequence of this disorder? Rheumatism frequently attacks the heart. M. Broussais would say, that in every case of acute rheumatism, in which there is acceleration of pulse, there is carditis. But he will grant, that it cannot be a more essential adjunct of rheumatism than of idiopathic fever; yet I can with confidence assert, that the majority of cases of chronic affection of the heart which fall under my notice are referrible to the former disease, whilst I scarcely ever meet with it as an effect of the latter.

Does post mortem examination show the existence of this carditis? Many cases have I examined most carefully in which there were no traces of inflammation of this organ, to the diseases of which my attention has long been directed; and the same has happened to others. But some authors of unquestionable discernment and good faith have found marks of affection of the heart, in dissections of those who have died in fever. M. Bertin's work is rich in cases of this kind. These I have carefully examined. In some there does appear to have been inflammation of the lining membrane of the heart, with a similar affection of that of the aorta; but in most of them the affection seems to have been the mere result of impaired nutrition in diseases of long standing, softness and flaccidity of the organ

being the morbid change discovered, with a brownish appearance of the lining membrane, probably from that stasis of blood in the capillaries which is so generally observed in fevers. Had the other muscular organs been examined, I have no doubt that traces of defective nutrition would have been there equally visible. In one of the most violent cases, in which the phrenetic and "ataxic" symptoms were such as to simulate hydrophobia, but which terminated more *speedily* than the others, the heart was "well formed, robust, and of a *good consistence.*" This confirms the view taken of the nature and cause of the softening in the other cases. In this, M. Bertin's tenth case, "the internal membrane of the cavities of the heart was a *little brown* (un peu brun)." I presume, that no one would accept this as sufficient evidence of carditis.

Dr. Jackson furnishes testimony confirmatory of the opinion I have formed, that this changed structure is the result of the *general* lesion of the function of nutrition, operating on all the soft textures of the frame, and not any inflammation of the organ. In what he terms the cardiac form of fever, thus considering very properly affection of the heart as an occasional, not an essential, concomitant of the disease, "The heart," says he, "is diminished in size and density: sometimes it does not weigh more than

one third of its natural weight. It is loose and flaccid as a bag of wool or cotton, and pale as if it had been bleached. Colouring matter is absorbed, not only from the heart, but from *every part of the body*. *The fleshy parts are every where diminished in size —pale and flaccid.* The stomach and intestines are pale—colourless as if they had been under a process of artificial bleaching."

Sufficient reason has, I flatter myself, been assigned for our withholding our assent from M. Broussais' doctrine, which has been examined on the only two points regarded by himself as essential. In a discussion of this nature, it should be remembered that the burthen of proof rests with the propounder of the theory, so that I may be exempted from troubling the reader with a host of *positive* arguments against it. But two facts present themselves so obviously in opposition to the theory in question, that their bare enunciation will suffice to shake our confidence in it. The first is, the speedy removal of fever (sometimes in less than forty-eight hours) by the cold affusion. The second is, the effect of arsenical solution in curing ague. "Each regular paroxysm of intermittent fever," says the author, "is the sign of a gastro-enteritis, of which the irritation is transferred to the cutaneous exhalents, which produces crisis." "If arsenic," says he, "is not promptly fatal, it ex-

cites inflammation of the gastric passages in shades which vary according to the dose and the idiosyncrasy." I should like much to listen to the special pleading by which M. Broussais would endeavour to reconcile these propositions with the known effect of arsenic in preventing the recurrence of the paroxysms of intermittent — the prevention of inflammation of the digestive canal by a mineral whose peculiar effect it is, on his own showing, to produce this inflammation.

With regard to typhus, he has kindly taken the trouble to refute his own doctrine. Though he tells us repeatedly that this disease is merely gastro-enteritis, with the addition sometimes of another phlegmasia, still the product of gastro-enteritis, yet, in his 318th proposition, he gravely informs us, that "the gaseous poison or miasma which engenders this disease, weakens the vital power and the living chemistry (chimie vivante) to such an extent, that losses of blood can no longer be repaired." This is so close an approximation to the doctrine which will be propounded in the following pages, that had he traced the impression on these functions to its legitimate consequences, and attributed to it, especially to that on the former (for the derangement of the vital chemistry seems merely *an effect* of the disease of the solids), its fair share in the production of the phenomena, there would have been little dispute between us. As he has not

done so, and as he still insists that all the symptoms of fever proceed from gastro-enteritis, he has incurred the sin of ontology only to prove his own inconsistency.

Even the statement, that the enteritis when it exists always commences and is conjoined with gastritis, seems of questionable accuracy. It rests exclusively on M. Broussais' favourite mode of reasoning, assuming that the symptoms of fever prove whatever he deems meet that they should. The following case and dissection militate considerably against it. To urge, that Morgagni, Bichat, and others have shown that acute inflammation may exist during life, yet leave no trace in death, would avail him nothing; for still are we left without any evidence, but his own conjecture or wish, for its existence. Indeed, this fact of the turgescence of blood-vessels in life disappearing at its close, is a strong evidence of the futile nature of this doctrine, by proving in how many cases it must of necessity be founded on mere speculation. The experience of every medical man must have presented to him very many cases, in which there were no symptoms during life of gastric inflammation; and if the fugacious nature of the appearances renders it actually impossible that it should always be verified after death, on what foundation can the universality of the doctrine rest? It presents, perhaps, one advantage, that as it

must be assumed without proof, so does it defy complete refutation.

Private Henry Argent, 83d regiment, was admitted under the care of Mr. Green, surgeon, of this town, January 20th, 1828, on account of febrile symptoms and cough, for which he took saline medicines, and had a blister applied.

" 22d. Has evident symptoms of typhus; dry parched tongue and lips; has been delirious all night; pulse 110, and weak; skin dry; cough troublesome; no pain on coughing.

V. S. B. ad ʒxij.; bolus of Calomel and Antimonial Powder, followed by Pulv. Jalapæ comp. ʒj.; mixture with Liquor Ammoniæ Acetatis.

" 23d, Evening, was reported to be much worse; was very delirious during the day. Pulse 110, and weak; he appears very deaf and stupid; cough troublesome. He says he has no pain any where. Leeches to the temples. Cold applications to the head. Bolus of calomel and antimony, and blister between the shoulders. Spoon diet with oranges.

" 25th. Had low muttering delirium all night. He is very deaf; pulse 120, extremely low; tongue dry and brown; teeth covered with brown sordes; bowels have not acted since the morning; he takes no nourishment excepting tea; cough is not so troublesome as it was a day or two ago.

"Bowels were opened by calomel and antimonial powder, and he took saline mixture.

"On the evening of the 27th he was reported to have had low muttering delirium all day; tongue and lips dry and brown in the extreme; and on the 30th, to incessant delirium were superadded constant picking of the bed-clothes; subsultus tendinum; pulse 125, exceedingly weak. He was stated to be in imminent danger." *

Enough has been reported to enable any one to identify the disease.

He died on the 31st, eleven days after admission.

The body was examined, five hours after death, by Mr. Green, who had treated the case, Mr. Piper, surgeon 83d regiment, and the author.

Head.—The vessels of the pia mater were turgid with blood, especially over the posterior portion of the posterior lobes of the cerebrum, and there were slight traces of lymphatic effusion under the arachnoid membrane of the same part. The greater turgescence at this point might be owing to its being, from the position of the body, the most depending part. The lateral ventricles contained a small portion of fluid, not measured.

* Extracted from the Medical Register of the 83d regiment.

The choroid plexus was healthy, as was the cerebellum. The tuber annulare and adjacent parts at the base of the brain were rather unusually vascular, but very slightly so.

Thorax.—The left lung was healthy, the upper portion of the right one tuberculated. One large tubercle, contiguous to the right ramification of the bronchia, was in a state of suppuration, and mingled with the tubercular was much calcareous matter. This posterior and upper portion of the lung showed traces of inflammation. The pleura too was affected. There were strong adhesions between its corresponding surfaces; and two of the lobes of this lung were so agglutinated as to be separated with difficulty. On laying open the bronchia, their lining membrane was found highly injected and vascular; their minute ramifications were filled with frothy mucus.

The heart was perfectly healthy.

Abdomen. — General appearance presented nothing remarkable. Slight vascularity of certain portions of the intestines was perceptible through the peritoneal coat. The whole alimentary canal, from the œsophagus to the rectum, was removed and laid open. *The mucous membrane of the stomach was perfectly healthy;* that of the duodenum and jejunum might be considered so, with the exception of one or two points slightly vascular, but not so in any considerable degree. A quan-

tity of very tenacious, orange-coloured mucus adhered to it. The upper portion of the ileum was healthy; but as we approached the inferior portion within half a foot of the valve, ulcerations became perceptible. The first we met with were small, not the size of a split pea, and were in clusters of two or three together, placed upon red elevations, of which there were several, of the mucous membrane. One of these elevations was an inch in diameter. As we descended, the ulcers were found larger, one or two as large as a sixpence, and of an oval shape. These larger ulcers had consumed the whole of the mucous membrane, in the space which each occupied, and this membrane formed a well-defined raised margin to each.

The other abdominal viscera were sound. The gall-bladder was much distended with bile of the same deep orange colour as the mucus which smeared the intestines.

This case is as confirmatory of the accuracy of the observations of Dr. Hewett, as it is of the very different quality of the reasonings of the Parisian professor.

It has been made a subject of reproach to the pathologists of this country, that they fail to seek the disease in the diseased organ. The truth is, that we have sought it there, but our perquisitions having conducted us to many diseased

organs, we have become dissatisfied with these limited views. What appears to the writer the fairest inference, from all the facts of the case, shall now be stated as succinctly as possible. He has no ambition to build a theory, but having been in the habit of thinking of the numerous diseases presented to his observation, and having found his thoughts occasionally not in perfect accordance with those of all others (for how, indeed, should they be so on a subject, for example, like the present, regarding which such discordancy prevails throughout the profession?), he does not shrink from exposing them to the ordeal which some of theirs have undergone.

In certain cases, the evidence of an immediate effect of the poison on the nervous system, employing this phrase in its most comprehensive sense, is too manifest to admit of a question. The patients are almost struck dead: the system makes no rally, but is almost irrecoverably overwhelmed as by a blow. M. Broussais seems to acknowledge such a case, when he says, "Those miasms which emanate from decomposed animal and vegetable matters, and from the bodies of congregated sick persons, are sometimes so deleterious as to occasion debility, and even death, without re-action;" but he does not refer it to its obvious source, the impression on the sensorium and nervous system generally. Though

I have recourse to extreme cases to illustrate or enforce a proposition, I deem that the ordinary phenomena of continued fever, and even of ague, demonstrate, that the nervous system is affected from the very commencement of the disease, and that, in most cases of continued fever, this affection endures and displays itself by perceptible signs to the close. The giddiness and pain of the head, the incapacity of attention, the ringing of the ears, the aching along the spine, the languor and lassitude, the chilliness and rigors, showing as clearly as the admirable experiments of Brodie the dependence of animal heat on nervous influence,—all demonstrate, that at the commencement of fever the nervous system is powerfully affected; whilst the mental hallucinations which accompany its course, the low muttering delirium, the subsultus tendinum, and the picking of the bed-clothes, which mark its close, equally display the continuance of the sensorial disturbance to the termination of the disease. These latter symptoms may be attributed, and perhaps sometimes justly, to an inflammatory affection of the brain; though the fortunate result of certain practices in the disease, now less general than heretofore, seems to prove that this cannot be the constant cause. But it is not clear how the first symptoms, those of depression of sensorial power, are to be attri-

buted to inflammation; and allowing this to exist in the more advanced stage, it may probably have arisen on the principle of "Ubi irritatio ibi fluxus," from the mere irritation of the organ consequent on its primary depression.

I have inserted, and I think correctly, ringing of the ears, or syrigmus, among the symptoms of sensorial debility and depression. It is a conspicuous feature in diseases of weakness. It occurs in swooning, after hemorrhages, and in various other states of the frame, in which we should expect diminished, not increased energy of the brain; and in which, if they arise at all from the condition of the sanguiferous system, we should expect lessened not increased impulse to the head. It is always most felt, both in fever and other diseases, in the erect, not the recumbent posture. The sense of undulation is not synchronous with the pulses of the arteries, and it occurs in conditions of the system the very opposite of that excited state in which the beating of the carotids is audible to the patients. Not in fever only, but in various chronic disorders, is ringing of the ears supposed to indicate flow of blood to the head, when, in truth, it shows either a state of the circulation the very opposite of this, or a simple affection of the sensorium, independent of any disorder of the sanguiferous system.

It is not intended to claim priority for the affection of the nervous system, or to follow a course which has already been deprecated, that of adopting one organ or system of organs as a peculiar favourite, and making the disorder of all the others to hinge upon it; but we cannot close our eyes to evident facts, and these teach us that the affection of the nervous system yields to none in priority; and a little attention to the course of some cases of fever, and the effects of remedies upon them, shows that it yields to none in practical importance. The symptoms denoting this affection mingle in greater or less proportion with all the other phenomena of the disease, and according as they or those dependent on pure inflammation predominate, must the treatment be modified. I am no more prepared to assert, that the vascular disturbance which plays so prominent a part in fever is uniformly the immediate result of the sensorial affection, than I was ready to reverse the order, and declare the sensorial the result of the vascular depression or excitement. The same poison which influences the one system, may have as immediate an action on the other; but it would be contrary to what we know of the reciprocal dependence of all parts of our frame, to conceive of them as having each its own insulated morbid process throughout the course of a protracted

disease; though this dependence is not so essential as to preclude the possibility of a preponderance of the disorder of one system over that of the other, as of sensorial excitement and nervous irritation over vascular disturbance. This inequality in the affections of different parts of the frame it has frequently been my lot to observe. We may remark, however, that where the nervous depression is great, as frequently occurs in bad epidemics, and in the most unfavourable cases, there is generally a proportionate depression of the circulation; and this leads me to consider a state, which has not been very clearly defined, — that of congestion.

The term is here employed in the sense in which, if I mistake not, it was originally applied to the vascular system, to denote a peculiar state of the venous circulation only. More recently it has been used by M. Broussais and others in a different acceptation, expressive of a greater afflux of blood to the arteries of a part, constituting a state akin to, if not identical with inflammation.* The condition of the venous system designated by this term I believe to be the result of the action of the heart, enfeebled either as a consequence of the depression of the sensorium or by the direct agency of the poison. As

* Broussais, op. cit. Proposition 78—83.

a consequence of this debility of the heart, the arterial and capillary system will be but imperfectly filled with blood, and accumulation will by consequence take place in the pulmonary vessels, the venæ cavæ, the sinuses of the brain, the hepatic veins and vena portæ, and venous system generally. In fact, the condition of the venous circulation will be much the same, excepting that it is more suddenly formed, as when the due distention of the arterial system is precluded by some mechanical cause, such as disease of the mitral valve or semilunar valves of the aorta, or as it is in passive aneurism of the heart. According to this interpretation, and if it be not correct, I must candidly confess that I do not understand what is meant by the term, congestion is an effect, not a cause, though unquestionably an effect, like many which we observe in the human frame, calculated to aggravate the evil whence it sprang. In this state of the circulation, the appearance of petechiæ and discharges of dark-coloured blood from the bowels, such ordinary occurrences in bad fevers, need not be matter of astonishment. From the accumulation of blood in the veins of the brain, delirium and stupor will be aggravated; and from the state of the smaller circulation, the breathing will be anxious, oppressed, and laborious. The laden condition of the hepatic veins and vena portæ will cause epigastric uneasiness and distention, and

the gorged state of the liver will make an effort to relieve itself by those dark vitiated secretions which we so constantly remark. The same state of the circulation prevails in a less permanent mode, but still while it lasts to a considerable degree, in those fevers, whether of intermittent or remittent character, which are the acknowledged product of marshy effluvia. During the cold stage, the *remora* of the blood in the hepatic veins, and vena portæ, in common with the rest of the venous system, induces those dark alvine evacuations, which not only calomel but any purgative will bring away from the bowels after a fit of ague. It once and only once occurred to the writer to see a patient die in the cold stage of intermittent. The most powerful stimuli, the warm bath, &c. failed to bring about reaction. This cold stage lasted many hours. Post mortem examination showed nothing very remarkable, but the enormous bulk and gorged state of the vessels of the liver and of the venous system generally. That viscus was soft and spongy, like the spleen, and seemed as though it had yielded within those few hours to the pressure of the blood which distended its vessels.

May not those affections of the mucous membrane of the intestinal canal, the importance of which is acknowledged, though the attempt to elevate them to a rank to which they are not entitled is deprecated, be connected with the state

of the vena portæ? Instead of considering the irritation as propagated from the lining of the intestines to the liver, would it not be as rational to reverse the order, and suppose the affection of the mucous membrane the effect of the irritating matter poured from the gland into the bowels? Reasoning *à priori*, we should expect that such acrid matters would irritate the parts along which they pass. But what is of more importance, there are many facts which favour this opinion. I have often remarked that inflammation and even ulceration of the mucous membrane of the intestines has supervened on hepatitis, in which an irritating colluvies had been poured into the bowels. The same has been observed in cholera. On enquiring of a medical gentleman, Mr. Piper, surgeon of the 83d regiment, who had witnessed the ravages of the Indian epidemic, whether in those dead of this disorder he had seen ulceration of the intestinal lining, he replied, that he had in one case. Of course the rapid fatality of the disease will account for the rarity of the occurrence. The wonderful efficacy of mercury in most forms of bowel complaint, a certain analogy between which and fever has already been pointed out, and particularly in the endemic in the Penitentiary, strongly favours this opinion. The sudden mode in which relief was afforded by the mineral leads to the same conclusion.

"After a calm," says Dr. Latham*, "procured by one or two large doses of calomel and opium, or after the employment of inunction for two or three days, the constitution would become suddenly roused, and a very severe griping would arise, and then a sensation would follow as if the bowels were filling and distending themselves with something, and afterwards an uncontrollable urgency to stool. With the evacuation came the relief of all the preceding misery. The stools were entirely changed. A few hours before, they consisted, perhaps, of slime or blood, or some colourless turbid fluid. Now they were a colluvies of the foulest, blackest matter, and of every kind; heavy, ropy mucus and *bile* formed a considerable part of them. After one or two such evacuations, the patient felt himself entirely restored and well. It generally happened, however, that the same sort of paroxysm returned, and was terminated by the same kind of relief. Thus, after a whole night spent in a succession of these critical paroxysms, the patients were found the next day bathed in a warm perspiration, and fast asleep; and from this time *the evacuations from the bowels became natural and healthy*." From this well-drawn sketch we must infer, that

* An Account of the Disease lately prevalent at the General Penitentiary, pp. 74, 75.

previously to the exhibition of mercury there had been a deficiency of bile in the bowels, or that the bile poured into them had deviated considerably from its natural healthy character. On either supposition, the salutary stimulus of the bowels was wanting. When the liver began to disgorge its contents, severe griping and the expulsion of unhealthy matter from the intestines was the first effect of the restoration of a biliary secretion different from that which had lately existed. After a painful struggle, a more healthy action of the mucous membrane of the intestines, and the healing of the ulcers of which dissection proved the occasional existence in that disorder, followed the re-establishment of a more natural secretion. Besides the direct effect of the corrected biliary secretion on the surface of the mucous membrane, the emulging of the liver, by diminishing the load in the vena portæ, will relieve the mesenteric vessels, the diseased action of which must be the immediate cause of the morbid condition of the intestinal lining. Though disposed to attach considerable importance to this latter mode in which relief appears to be afforded to the diseased state of the mucous membrane, yet I am of opinion that this state depends in a great degree on the immediate action of the unhealthy secretions on the intestine. This view derives support from the fact, that both in the case stated, and in those so

accurately reported by Dr. Hewett, the ulcerations were found in the vicinity of the iliac valve, where some degree of remora would detain the irritating contents of the bowels in contact with their lining.

The following case is given as illustrative both of this point and others of importance. Its bearing on the doctrine of M. Broussais, and its analogy with the cases of Dr. Hewett, are too manifest to require to be indicated.

"Private Henry Hooks, æt. 18, admitted with typhus fever, on March 3rd, 1828.

"Complains of nausea, with inclination to vomit; head-ache with rigors; bowels costive; pulse 75, and small; tongue foul. He says he has felt unwell for some days.

"Sumat statim Pulv. Emetic.

"Evening, vomited bilious fluid several times; pyrexia increased; pulse 96, full and hard. He has great inclination to sleep, and scarcely takes any notice when spoken to; his bowels have been opened twice; tongue very foul, and he has much ringing of the ears.

"Fiat Venæsectio ad ℥xx. Sumat Bolum Aperient. horâ somni, et crastino mane Oleï Ricini ℥j.

"4th. Fainted from the bleeding. He is worse this morning, with low muttering delirium, and great stupor; tongue brown, but moist; stools

very frequent; urine pale; pulse 120, and small. Blood drawn last night slightly buffed.

" Sumat Misturæ Salinæ ℥ij. omni tertiâ horâ.

" Admoveantur singuli tempori hirud. iv. et posteà applicetur Emplastrum Lyttæ nuchæ colli.

" Evening, not any better; pulse 130, quick and small; feet cold, and of a clammy feel: he has had two evacuations from the bowels. The leeches drew about four ounces of blood.

" Bolus Aperiens et Cataplasmata Sinapeos plantis pedum.

" 5th. He is much the same; had scarcely any sleep during the night; two evacuations from the bowels; skin moist, and of a more natural temperature; pulse 130, small and weak; tongue brown, and a little moist; subsultus tendinum; low muttering delirium. Blister has discharged well.

" Contr. Mist. Salina,
Olei Ricini ℥j. statim.

" Evening. He remains in a comatose state; pupil is much dilated; pulse small, quick, and thready; tongue brown and dry; partial perspiration about the neck and head; bowels moved four times, the discharges very offensive.

" Hirudines iii. singuli tempori,
Empl. Lyttæ capiti raso.
Illinatur Ung. Hydrarg. Fort. ℥j. nocte maneque.

" 6th. Does not take any notice when spoken to, and with difficulty his medicine is given to him;

four liquid evacuations during the night; urine passed involuntarily; pulse thready, small, and quick; tongue dry and brown; extremities cold. "He died at 10 P. M." *

Dissection fourteen hours after death; present Messrs. Piper, Green, Dixon, and the writer.

Head.—On laying aside the dura mater, the veins of the subjacent membrane were found extremely turgid with blood, as were the longitudinal and lateral sinuses. The lateral and third ventricles contained a little fluid, but scarcely in an appreciable quantity. The choroid plexus and vena Galeni were rather turgid with blood. The cerebellum and base of the brain presented the same venous distention as the superior surface. The basilar vein looked large. There was a little watery fluid, perhaps a drachm, at the base of the scull.

Thorax.—Lungs crepitating, healthy and free from adhesions. Bronchia healthy, and without that frothy mucus so frequently observed. A quantity of blood had gravitated to the posterior part of the lungs; but the natural healthy texture of that portion was in no way impaired. The pericardium and heart were perfectly healthy. The cavities of the latter were opened, carefully examined, and *found entirely free from disease.* The foramen ovale was open to a small extent.

Abdomen.—The peritoneal surface was heal-

* Extracted from the Medical Register of the 83d Regiment.

thy; a degree of redness, in one point even intense, was perceptible through it in some parts of the small intestines. The liver was large for the subject, and gorged with blood. The spleen was large, soft, and distended with blood like the liver. The gall-bladder contained a measured ounce and a half of fluid entirely devoid of the character of bile. What flowed on first opening the cyst was limpid and colourless, almost as much so as water; what followed, and seemed to have been more immediately in contact with the mucous membrane, had so much the appearance of purulent matter, that we really believed it was so. The two portions mixed looked like whey. The mucous membrane of the gall-bladder was carefully examined, and found free from disease. A little bile which flowed on dividing the hepatic duct was of a very pale citron colour.

The mucous membrane of the stomach and intestines was carefully examined from the cardia to the rectum. *That of the stomach was found perfectly healthy;* that of the duodenum and jejunum was equally so, but lined with tenacious, citron-coloured mucus. But as we descended the ileum, and approached the valve, the scene changed. There was, first, increased vascularity; then ulcerations became perceptible. They were more numerous and larger than in Argent's case. There were the same red elevations of the mucous membrane, with excoriated patches on their sur-

faces. One of these elevations was three inches in length, by three quarters broad. Several were an inch in length. They were numerous in the situations where the redness had been perceived through the peritoneal coat, the lower part of the ileum, and very numerous indeed near the valve. The valve itself looked more full and vascular than usual. There were none of those deep ulcerations, with elevated edges, which were found in Argent. Besides the elevated ulcers, there were innumerable small bodies, like millet-seeds, perceptible both to the sight and touch, through the mucous membrane, interposed between this membrane and the muscular coat. After we passed the iliac valve, all traces both of these granular bodies and of ulceration ceased; but the colon was not perfectly free from vascularity in some points.

The other abdominal viscera were healthy.

In all fevers the circulation is frequently in a state the very reverse of that which has just been described, one of general excitement. We shall not imitate Cullen, by creating a crowd of metaphysical beings to connect this state with the affection of the sensorium. For all practical purposes, it is sufficient that it exists and requires control. We may proceed a very little way in tracing a connexion between some of the phenomena of fever; but it is beyond our power to discover a bond of union among them all. We

do not even *know* that such a bond exists, still less can we refer them to one alone essential and primary change, meriting the designation of proximate cause, on which the whole series depends. This excited state of the circulation is, as might be supposed, accompanied by inflammations, which it is our duty to control, and even to subdue, if we can do it prudently; but I will venture to suggest, that it is one thing to subdue these inflammations, and another to cure the fever. The brain, the bronchial lining, the liver, the stomach, and intestines, are the most usual seats of undue determinations and phlogoses. These do not appear to be the *cause* of the fever, in any thing like the proper sense of the term; but they are occasional and important concomitants. Their detection frequently requires diligent investigation, and their existence always vigilant attention.

The nervous and vascular functions being thus disordered, those of secretion, assimilation, and nutrition must follow in their train, and the disease become one "of the whole system, in every kind of sense." At the commencement of the disease, there is prostration of strength from the action of the poison on the nervous system; at its close there is positive debility, at once from defective nutrition and the agitation of the previous storm. This debility exists to a great extent in convalescence, and the parts of the

frame which have been most affected at the height of the disease remain long in a shattered and enfeebled state. This disorder shows itself in the vascular system in various forms. Boils are frequently observed in different parts of the body. Abscesses in the meatus auditorius are not unusual in young persons. Periostitis, terminating in suppuration, is an occasional occurrence. Swollen limbs in individuals of both sexes, strikingly resembling phlegmasia dolens, and remediable by the measures most useful in that disorder, leeches and blisters to the inguinal region, are frequently witnessed. Chronic bronchitis is, as might be expected from a somewhat more acute form frequently existing during fever, a very common sequela of the disease. This is often accompanied with purulent expectoration, a degree of hectic and morning perspirations, so as considerably to simulate phthisis. The stethoscope, so much decried by those who have acquired no right to judge of its value, is alone competent to decide, and, to the writer's knowledge, has frequently decided between the two disorders.

It is long ere the hepatic functions are restored to their healthy state, especially after remittent fevers, in which there are sudden transitions from the oppressed to the excited state of the circulation, and of which inflammation of the liver is so ordinary a concomitant. Their dis-

order is indicated by palish alvine discharges, some degree of epigastric fulness and tenderness, increased after eating, and an appetite, which, as is generally the case in convalescence from fever, exceeds the power of digestion. The complexion is exceedingly *pasty*, the whole face looks puffed, as though it were œdematous, and there is generally slight yellowness of the conjunctiva. The abdomen becomes tumid, apparently from the debilitated parietes of the intestines yielding to the distention of their contents. This state, when early attended to, may generally be corrected by restraint in diet, small doses of blue pill combined with colocynth or other aloëtic purgative, and the use of the tepid salt water shower bath.

The debilitated condition of the sensorium is displayed by a peculiarly feeble and irritable state of mind, which premature occupation in business or disappointment in pursuits will readily ripen into insanity. I have seen, indeed, mental derangement, requiring temporary seclusion, produced during convalescence from fever, by causes of this kind. This peculiar state of mind is the most common of all the sequelæ of the disease.

Treatment.

Nosological distinctions and accuracy of nomenclature are of value, as imparting precision

to language, and consequently to reasoning, and rendering medical men intelligible to each other when they interchange their thoughts respecting diseases. But at the bed-side they are of less importance than the public are apt to conceive. There our business is more with the organs affected, and the mode of their affection, than with the accurate grouping of the whole under a precise designation. This is remarkably the case with regard to the disease now under consideration; a disease which we cannot properly be said to have the power of curing, but only of conducting safely in the more fortunate cases to its natural termination, and in which the measures to be employed during our guardianship must be varied according to the very varying circumstances of individual cases. It is not the object of this portion of the Essay to give formal instructions, such as are to be found in every compendium of medicine, for the treatment of fever, but to make observations, deduced from the experience of the writer, on the more powerful remedies employed in that disease.

General Bleeding. — The day when the word typhus would have precluded the employment of this remedy being now gone by, we need not pause on the name of the disease previously to putting it in force. But we should deem it one of the means by which we are to guide our patient through his disorder, and not as a method

of immediate cure. The only fever which I have found speedily and certainly curable by blood-letting and the ordinary evacuants, is the cauma or synocha, which appears in warm climates, and seems generally to owe its origin to the stimulus of heat. It is quite a different disease from the remittent fever of those countries, which is by no means so tractable. Nevertheless, bleeding, moderately and prudently practised, is often highly expedient in the fevers of Britain. If inflammation accompany them, it subdues it. In those of high excitement, it tends to moderate the violence of reaction, and thus lessen the subsequent debility. With it, fevers may be safely conducted to their natural termination; by it, they can *rarely* be cured. I have said, can *rarely* be cured, for it is not intended absolutely to deny the possibility of inflicting such a shock on the system by profuse bleeding and other subsidiary measures, as shall break the catenation of fever, especially in its early stage, ere it is fully formed. But I must venture to question the safety of the practice carried to the extent recommended by the late Dr. Jackson; and milder measures of the same nature present no chance of the attainment of the object. The reasoning which led the author to this practice is abundantly simple. He strikes a violent blow at the system, with the view of changing its action. But, supposing the action

induced not to be that of health (a supposition exceedingly probable), is there not too much likelihood of its proving worse than the original one? In what condition is a patient to struggle through a protracted fever, after the loss of nearly a hundred ounces of blood? My objections to this practice are not founded on mere *à priori* reasoning, always of doubtful application to so complicated a machine as the human frame, but on information received from intelligent medical friends, who had ample opportunity of observing its result.

Patients will generally pass more safely through fever after one general bleeding at the commencement; but cases occur in which its employment, even with the moderate object here contemplated, requires more caution than is always exerted. The peculiarities of these cases are derived, first, from the disease, and, secondly, from the habits and temperament of the patient. First. In that form of fever in which the sensorial and vascular depression is great—the congestive fever of Jackson and Armstrong—the patients appear to be benefited by one *very moderate* bleeding at the commencement; but very rarely indeed have I thought its repetition prudent, or found, if practised, that there was not subsequent cause to regret it. One *moderate* bleeding seems to relieve the venous plethora, and this relief more than counterbalances any effect

it may have in increasing the depression of sensorial power. But from its repetition I have seen the patient sink, never more to be recruited. Were fever, as some writers contend, mere inflammation, should we find such results, or would this circumspection be requisite? There are few medical men who do not feel that such cases as these are distinct from the phlegmasiæ, and that the effects of copious blood-letting will be very different in the two orders of diseases.

Secondly. The aged, infirm, and habitual free-livers, in all diseases, bear bleeding ill. But, besides these more familiar classes, there is another in which phlebotomy must be cautiously and sparingly practised. It consists of men, perhaps not above middle age, whose minds and bodies, either from the circumstances in which they are placed, or from a natural ardour of temperament, are unceasingly taxed to the very utmost of their powers. With this class of persons, and medical men themselves too frequently belong to it, we must deal tenderly, or the mischief will speedily be irretrievable.

In fevers attended by permanent excitement, there need be no hesitation respecting a first bleeding to the extent of fifteen or twenty ounces. After this is performed, the progress of the disease should be watched for a day or two; and should the marks of excitement continue, such as white tongue, or tongue white at

the edges, but with a red or brownish streak in the centre; pulse permanently hard and full, without alternations of feebleness or vacillation; delirium, if it exist, rather of the high and lively, than of the low and muttering kind; skin of a pungent warmth, unalternated with cold or clammy sweats; if with these symptoms the urine be high coloured, and especially if there be local pain in the abdomen, we need have no hesitation, in young and middle-aged subjects, respecting a repetition of venesection to a moderate extent. This state of excitement exists frequently in actual typhus, but still more frequently in remittent fever. In this latter disorder, it of course alternates with the remission and the chill which ushers in the exacerbation. But if, during this last, there be the symptoms pointed out as indicative of excitement, and especially if there be what will often be found, pain on pressure in the epigrastrium or near the umbilicus, we need have no hesitation. But, in any fever, should the excitement be vacillating, the delirium rather of a low and muttering kind, sordes forming on the tongue and teeth, subsultus tendinum, the countenance of a purplish hue, a clammy moisture on the skin, which the taking of warm liquids readily increases to a considerable sweat, it must be cautiously avoided. Should appearances such as

these be accompanied by topical phlogoses, local bleeding will be the only form of it admissible.

Local Bleeding.—For subduing inflammations attending the more advanced stage of the disorder our chief reliance must be on leeches. To the head with cold stupes their application has been long and very properly a familiar practice with the profession as a remedy for delirium, whether of the more torpid or excited kind. In the latter form it seems advisable to be more liberal in their employment than in the former. In the bronchial affection, which so frequently occurs, and which the stethoscope will often detect when it is little manifested by cough or other obvious symptoms, they may be beneficially applied to the thorax; and the portion of its parietes corresponding to the situation of the bronchial affection, which that admirable instrument readily enables us to determine, should be selected for their application. I agree with Dr. Beddoes and M. Broussais in recommending their being applied to the abdomen when symptoms require it, though not fully acceding to the doctrine on which the latter founds the recommendation. The point to which they should be applied will be as frequently discovered by the *manner* of the patient when we press the abdomen as by his verbal declaration; for in the half insensible state in which we often find him, a certain degree of

flinching will display the existence of pain, when he may declare himself free from it. The epigastrium is frequently the painful point, especially in remittent fever; in typhus, the uneasiness will as frequently be detected at the umbilicus, or verging thence towards the right ileum. This is the portion of the parietes of the abdomen corresponding to the point of intestine which is frequently found vascular and ulcerated. I am at this moment in attendance on a patient, with all the symptoms of bad typhus, in whom the pain exists in this situation, and to whom leeches have there been applied with benefit. A physician of talent and experience in a neighbouring town informed me that he is in the habit of applying cold stupes instead of warm fomentations as adjuvants of local bleeding, not merely to the head, but to the abdomen, provided there be no simultaneous affection of the chest, when he thinks they should be avoided. This is continental practice, and there the chest forms no exception, bladders filled with powdered ice being applied to it, in pneumonia and pleuritis. My own experience of this kind of practice, excepting to the head, where we are all aware of its advantages, has been too limited to admit of my giving a precise opinion respecting it. But I am unable to discover any anatomical or physiological reason for its advantages in the one situation, and its

ineligibility in the other. The thoracic and abdominal contents are not supplied by the same arteries as their parietes; but neither are those of the head, as we have for the brain the internal carotid and vertebral arteries, for the integuments of the skull only branches of the external carotid; the distribution of the small supra-orbital branch, derived from the internal carotid, on the periosteum of the forehead, and the inosculation of branches derived from the vertebral with those of the occipital artery at the upper part of the neck, being too insignificant to be regarded as forming an exception. The question is one which experience alone can decide; and as the testimonies from the Continent are in favour of the practice, it deserves to be tested by British practitioners. The irksomeness of the cold application to the lower cavities, habitually covered by dress or bed-clothes, may, perhaps, furnish a considerable objection to it, and probably experience may prove that the well-known tendency of chilness of the surface to produce pain of the bowels may present one still more cogent.

Blisters.—In the torpid form of delirium these may be beneficially applied to the head; but in the more excited form, cold stupes seem decidedly preferable. The nape of the neck is a situation much selected; but there the benefit of them may well be questioned; and certain I am, that irritation is thus added to many a febrile

patient, which could well have been spared. They are of great value to the chest in bronchial affection after the application of leeches, and the point corresponding to the situation of the affection should be selected for them. The same remarks may be made regarding their use to the abdomen. As they deprive us of the advantage of touch, leeches once or twice should precede their employment there.

Mercury.—It has been a question, whether this mineral cures fever by its full action on the system, or whether the action takes place because the fever subsides. My answer would favour the second of these views. In remittent fever, during the remission, I have frequently observed full ptyalism, which has disappeared during the exacerbation, to be again perceptible on its subsidence. Apply this to continued fever. Mercury is employed, but does not act on the system; the fever abates, and its action becomes manifest. Should relapse occur, the febrile would supersede the mercurial action. I have seen cases in point. To a female ill of continued fever, in whom there were considerable hepatic and gastric symptoms, mercury was very properly administered. The moment she became convalescent, and not till then, the mouth was affected. From an error in diet, relapse took place, and the ptyalism immediately disappeared. By purging for two or three days,

she was again restored to convalescence; and again there was perceptible affection of the mouth. As the mineral, then, seems capable of being accumulated in, though it does not act fully on, the system during fever, we should be cautious of the quantity we administer, or inconvenience and even danger may ensue from it in convalescence. If I mistake not, the great control exerted by mercury, with or after bleeding, over most of the plegmasiæ, compared with its slight influence in febrile disorders, tends materially to confirm the view that is taken of the distinction between these two orders of diseases.

If mercury do not cure fever, why do we administer it in that disease? On the same principle that we employ other remedies, to alleviate or subdue certain circumstances connected with the disease, which aggravate its danger, and impede, what in the majority of cases unquestionably exists, its natural tendency to terminate in health, after running a certain course. Though it is impossible during the fever to produce its specific action on the whole system, yet, even at the very height of the disease, it acts powerfully and beneficially on certain organs. To the cathartics ordinarily and very properly employed, calomel is a useful adjunct, especially at the commencement and height of the disorder — towards the close, if there be

much positive debility, its administration for a purgative purpose seems of questionable propriety. Its slower operation in alterative doses, on the biliary secretion, and, perhaps, directly on the mucous surface of the intestines, is beneficial in inflammation and ulceration of that membrane. Where there is much debility in the advanced stage of the disease, the hydrargyrus cum cretâ may be advantageously substituted to answer these indications. The existence of the ulcers we cannot, perhaps, positively ascertain in the living subject; but we may strongly suspect them when pain is elicited in fever by pressure about the umbilicus, or extending thence towards the right ileum. So far as I have observed, they are compatible with both a costive and lax state of the bowels; and should not, in the former case, deter us from the employment of laxatives, nor in either case from the cautious administration of mercury. If diarrhœa exist, the mineral may be advantageously combined with opium. In conclusion, its employment in typhus is highly expedient, both as a purgative and alterative; and is still more imperiously requisite in remittent fever, where the biliary functions are so prominently affected.

Emetics.—Those who are of opinion, that gastritis exists in every case of fever will be startled at the proposal to exhibit an emetic at the commencement of typhus, provided there

be no epigastric tenderness. Like the vomiting which occurs in syncope, it seems to have the effect of rousing the system from the torpid and oppressed state in which it is frequently found when fever is beginning. It is, perhaps, too much neglected in the present day, though an old and popular remedy; and should the doctrines of M. Broussais retain any sway over the minds of men, it will speedily be placed, as bark and arsenic have already been, in the same category with the oxalic and fluo-boracic acids. By assisting in emptying the primæ viæ it is useful, but principally by the rousing effect of its shock, by its powerfully determining to the surface, and by the general freedom it imparts to secretion.

Cathartics.—Though approving of the free evacuation of the bowels at the commencement of fever, and of their being kept in a moderately open state through its whole course, yet have I seen the purging plan carried to an unreasonable extent, and towards the close of the disease with manifest prejudice to the patient. After emptying the intestinal canal at the beginning of the complaint by calomel, combined with colocynth, jalap, or some other active cathartic, it seems sufficient during its progress, along with alterative doses of calomel, to administer castor oil or the neutral salts, when there is any deficiency in the alvine discharges; unless the bowels are not

found amenable to these mild measures, when colocynth, senna, or some active purgative may be employed. The opinion that sordes accumulated in the bowels are the cause of fever, and purgatives its sole remedy, is just as objectionable as any of those *partial* views which have already been rejected. The alvine secretions are vitiated in common with all others, and the evacuations are consequently unhealthy. Their retention would aggravate the disease; but we cannot be right in considering that as the cause of it, which is only one of very many effects. Dr. Hamilton's work did much good on its first appearance; but like all books of which the views are too limited, which take a part for the whole, it has done some harm too. It was caught at with avidity by a certain class of men (who, it is but justice to Dr. H. to say, have not always made a correct application of his precepts), on account of the wonderful simplicity of the practice it inculcates, which saved them the trouble of thinking,—an irksome task to some. There is one opinion expressed in the work, which I have heard often repeated with considerable emphasis, and seen acted upon with more faith than prudence, of which I very much question the accuracy. It is, that emptying the bowels can no more occasion debility than emptying the bladder. In the first place, it is not very easy to empty the bowels entirely, without increasing

secretion from their mucous surface, and consequently diminishing the quantity of the circulating fluids. And, moreover, should our purgatives prove so strictly eccoprotic as to bring away nothing but what previously existed in the intestines, yet may the withdrawing of a considerable bulk from within the abdomen alter, like the operation of paracentesis, the state of the circulation there, so as to induce a degree of weakness and faintness with local tenderness. We all of us know the paleness of face, and the feeling of debility produced by the operation of a moderate dose of physic, and the daily repetition of even such a dose for three weeks or a month cannot be proper in every case. The employment of purgatives in fever requires, I am convinced, more care than is always shown; but with tolerable prudence on the part of the medical man, they are valuable, nay, indispensable medicines.

Passing over, in accordance with the plan proposed, some antiphlogistic and evacuating remedies of minor importance, we shall proceed to consider a very different class of agents; and, first, the

Sulphate of quinine. — I have found this the most certain of all the remedies of intermittent that I have yet tried. The dose in which I employ it is two grains every three or four hours, during the intermission, in any agreeable

distilled water. The astringent vegetable infusions, such as that of rose leaves, do not appear to be proper menstrua for it. It is certainly exceedingly insoluble in such infusions; and I suspect that this arises from some decomposing effect of the astringent principle. In intermittents I have rarely found it to fail, provided the apyrexia were perfect. But so far as my experience of it extends, and it has not been very inconsiderable, it does not appear to be a remedy for any stage of fever actually existing, whether remittent or continued. It is a powerful tonic, and, I rather think, possesses more stimulant power than most people attribute to it. It seems suitable only to a strictly apyrectic state of the system. In some few cases of convalescence, in which the strength was unusually broken down, I have seen it administered with advantage; though convalescence is a state which, in ordinary circumstances, is best intrusted to regulated diet, pure air, and moderately open bowels.

Wine, and other fermented liquors. — In some cases of protracted fever, the system will appear to vacillate for some days on the confines of convalescence, without actually attaining it. The symptoms are much mitigated, but have not totally ceased. There is no restoration of appetite; the tongue is dry, and perhaps a little sordes still adheres to it and to the teeth; the pulse probably does not exceed eighty, and is feeble;

there is some slight subsultus; the hearing is not perfectly restored; delirium cannot be said to exist, but questions are not readily understood, and are consequently slowly answered; the countenance is vacant, and the eye wandering; the temperature of the surface is rather below than above the natural standard. In cases like this, in which Sydenham would, to use his own figurative language, have endeavoured to produce despumation of the morbific matter by cardiacs, a moderate quantity of wine really acts like a charm, and appears to produce convalescence, sometimes even in a few hours. Wine, in which the alcohol is well incorporated with the other vinous ingredients, is preferable to merely diluted alcohol, as brandy, or rum and water; and even the wine should be diluted, or given with some light aliment, as sago. The motive for this dilution or mixture is sufficiently obvious, as the one or other of these proceedings brings it nearer the strength of real wine, a luxury not granted to Britons. It is probably for this reason that Dr. Armstrong has very properly recommended ale, which may frequently be given for the same purpose as the wine and water, and with equal benefit. I do not know any state or stage of fever, in which large quantities of spirituous or fermented liquors do good. In the excited form, it would be absurd to enter a protest against them, and even in the most sunk and torpid,

more favourable specimens which have sprung up in our immediate province. Other sciences have contributed their stores. To mechanics we owe some improvements in the treatment of certain injuries of the joints and of distorted spine; to acoustics the stethoscope, to chemistry that valuable gift the sulphate of quinine, and those useful agents the chlorurets of soda and lime. These are a few, culled at random, of modern improvements, and they are sufficiently important to induce us to wish and hope for more. All human science is now connected with ours, which cannot fail to be a greater blessing than it has hitherto been to mankind.

That our labours are appreciated by the public, the extra-professional attention paid to them sufficiently shows. It has been stated by a high authority on all matters connected with our literature, Dr. James Johnson, that medical works find more purchasers and are more read out of than in the profession. This interest, and the supervision which results from it, are salutary at once to the public and ourselves. To attribute very much of the increased duration of human life, which numerous documents before the public have fully proved, to an amelioration of medical practice directly exerted upon the sick, might be deemed arrogant. Part of this increased duration it will not be considered presumptuous to attribute to such direct influence;

but more is probably to be ascribed to correct ideas of the mode of preserving health, which are diffused from members of the profession through the mass of the community. In this indirect influence, a good deal of our utility consists, especially in the present day, when we are surrounded by a reading and inquiring public. This diffusion of knowledge is of inestimable value to ourselves. We ever find that the more enlightened the patient and his friends, the more sound and cultivated the understandings to which we can appeal, the more ready is the acquiescence in the measures recommended, and the greater the feeling shown for the difficulties and anxieties which are at present, and most probably will ever be, inseparable from the practice of our art. The day of mystery and trick in the profession is gone by in the educated walks of life. Let a man, who is really competent to what he is engaged in, make his appeal not to the weaknesses and prejudices, but to the understandings of those with whom he has to deal. No merit will shelter a medical man from occasional slander and misrepresentation; but it is only from the uneducated or half-educated that he will encounter them. From the really enlightened a deserving man has nothing to dread.

In accordance with the principle which I endeavoured to establish at the commencement of this

somewhat discursive preface, that every medical man, who has been long in extensive practice, has something to communicate not altogether undeserving attention, the following Essays will constitute a series of monographs on some diseases with which circumstances have rendered me abundantly familiar. Though professedly original, their nature does not preclude a reference to the opinions of others for approval or refutation. Both, when they occur, shall be expressed with the utmost candour. Should the ideas of any writer have found their way into these pages without acknowledgment, it has been unwittingly. "Faded ideas," says an author of distinguished genius*, "float in the memory like half-forgotten dreams, till the mind in its warmest enjoyments becomes suspicious of its offspring, and doubts whether it have created or adopted." Such misgivings will occasionally occur to all. Every precaution has been used to avoid the appropriation of the thoughts or words of another, excepting as to the former, where, being recognized truths of medicine, they may be considered public property. For any faults of method or style, I have to put in the plea, which medical men rarely offer in vain, that they have been composed mid the fatigue and bustle of the occupations which have furnished their materials.

* R. B. Sheridan.

even the patient, to retrace speedily their steps. Narcotics, and especially opium, are of the greatest value. Occasionally this drug has been given in a full dose at bed-time; but the preferable mode of employing it is in small doses, repeated at intervals of about four hours. I have given generally at such periods two minims of Batley's liquor opii sedativus, or black drop, or three or four grains of Dover's powder, in saline julep, or any cooling vehicle. Its effect in diminishing morbid sensibility, and the general uneasy feeling of the patient, is admirable.

It not unfrequently happens, that towards the close of a disease of a much more violent and acute character than that which has just been described, there is a great subsidence of vascular disturbance, but an incessant, vivacious delirium, particularly at night. I have found the patient with a pulse not very frequent, soft and weak, and his skin tolerably cool, but with considerable subsultus tendinum, loquaciousness, and jactitation. Narcotics, especially opium, are the remedies of this state; and in no case is the efficacy of this admirable drug, many of our obligations to which our very familiarity makes us almost unconscious of, more conspicuous. I have generally, in such cases, given a full dose at bed-time, and a smaller one in the morning, cold stupes being at the same time applied to the head or omitted, according to the temperature

of the surface; and restoration to health has been the uniform result of the practice. Along with the opium in these cases, I am in the habit of allowing, and with benefit, a moderate proportion of wine; for a certain analogy between the symptoms of this state and of delirium tremens has struck me, and I have conceived that a like resemblance might exist in the condition of the sensorium. The result, as has been already intimated, has appeared to justify the inference.

The diet and regimen of febrile patients, in ordinary circumstances, are now so well understood, not only by all ranks of medical men, but almost by nurses, that to offer any remarks on them, beyond those already hazarded respecting fermented liquors, would be but the tedious repetition of an oft-told tale.

was published in the Edinburgh Journal of Medical Science. Since that period, I have assiduously watched its progress, and will endeavour to state briefly what has fallen under my notice. During the year 1827, Dr. M'Culloch wrote amply and ably on the *general* subject of Malaria. My object is somewhat different; it is to state what has lately occurred to my personal observation, in proof of the activity of this poison, and present an account of such parts of my previous experience of its effects as illustrate its recent diffusion, and at the same time show me to be not incompetent, from want of familiarity with the subject, to give an opinion on a question so important.

Referring to Montfalcon's "Histoire des Marais," or as I can with confidence to the writer previously mentioned, for the natural history of this poison, and for a detailed enumeration of its effects, I shall premise to the account about to be given of my recent personal observation of these effects, merely such a general description of it, as shall make what is to be stated intelligible to an individual previously almost or entirely ignorant of the subject.

Malaria, Marsh Miasma, Paludal Effluvium, and probably the less definite term of Sydenham, constitutio epidemica, designate the same agent, the existence of which is inferred from certain effects produced upon the human frame, and the

source of which is presumed to be the reciprocal action of dead vegetable and animal matter and moisture, because the effects attributed to it are perceived only where such reciprocal action is possible, and because they are very generally more marked and malignant in proportion as circumstances are more favourable to such action, as is exemplified in a marsh or jungle exposed to a high temperature. Of its chemical composition we know nothing; but we now can trace its source, its effects upon animal life, and, to a certain extent, the laws which regulate its diffusion. On these last, Dr. M'Culloch has hazarded some speculations which are deserving attention. The most obvious of its effects are intermittent and remittent fevers, which are the scourges of some of the fairest countries of the earth; but in ordinary seasons are confined in this country, with its temperate climate and advanced cultivation, to certain, as they are properly termed, aguish districts; of which those most conspicuously so are Lincolnshire, Cambridgeshire, some parts of Norfolk and Suffolk, and the Hundreds of Essex.* These are districts

* It appears by a map of the fenny counties of England, published at Amsterdam by Hondius, in 1632, that a very considerable proportion of the counties of Norfolk, Suffolk, Cambridge, with the Isle of Ely, Huntingdon, Northampton, and Lincolnshire, were at that time under water, and though the same geographer premises a long account of the

decidedly marshy; but this poison is not the *exclusive* product of *marshy* territories in the southern latitudes. An extensive plain, the surface of which is literally burnt by the sun, and presents no moisture, seems favourable to its production, provided the soil be rich and not sandy, the flatness precluding that underground draining which will naturally take place in countries of which the face is more irregular, and thus leaving the moisture and organised matter below the surface in circumstances advantageous to that mutual re-action which generates miasma. The Spanish province of Estremadura, and great part of the Alemtejo of Portugal, form an immense plain, and in spring and autumn scarcely could a house be entered there, and this has repeatedly been put to the test of experiment, in which some individual would not be found labouring under ague or remittent fever. This was the case at such distances from the river Guadiana, which intersects the plain, as to acquit its moisture of any share in their production; though the fevers were certainly more general and ma-

"drowned lands," and compliments the proprietors who were then about to drain them, he does not once mention their property of generating intermittent and remittent fevers. The drainage has remedied much of the evil. But in seasons of unusual warmth, ague in these situations may be expected to be very prevalent, and we may even meet it, as this Essay tends to prove, in districts not ordinarily deemed marshy.

lignant near the marshy borders of the stream. And in climates ordinarily temperate the same miasma may be generated during seasons of unusual warmth, in situations to which the term marsh is by no means applicable, provided they possess the requisites for its production,—water on or at a little distance below the surface, and dead organised matter undergoing the decomposing process by which it is converted into its original elements. Such generation will be most likely to occur at times when the range of temperature is above the average of the climate at the corresponding season. Whether there is not some inappreciable state of the atmosphere, which favours the production of miasmata more at one season than another, may be matter of question. Some facts, which have fallen under my observation, showing that its abundance is not always in proportion to the usually assigned meteorological causes, would lead us to answer in the affirmative.

Besides the more obvious indications of its action, intermittent and remittent fevers, from which its existence was originally inferred, and from which all medical men (I do not think the sentence too comprehensive) now conclude it to be present, there are other signs of its prevalence not so universally acknowledged. These are, so far as my observations extend, bilious diarrhœa, cholera, dysentery, liver disease, and jaundice;

and Dr. M'Culloch has added to this list rheumatism and neuralgia. Let us consider such of these as bear upon our object, — the illustration of the fevers which have been epidemic during the last three years.

That cholera is owing to malaria might be suspected from its prevailing at the same season, autumn, that the second crop of intermittents springs forth. It has ever appeared to me, that the cause occasionally assigned, mere cold, or this with dampness towards night, after a hot day, was inadequate to its explanation. Were this the cause, think how certain artisans, glassmen, bakers, and others must be harassed by it! It will, I presume, be conceded, that the epidemic cholera of India did not arise from the mere alternation of heat and cold, this cause having been repeatedly in operation without any such effect ensuing; but that it was the product of a certain constitutio epidemica, or, in other words, of malaria. It was unquestionably a much more general and violent disease than that which we observe in this country; but these circumstances may indicate only a wider diffusion and greater intensity of the same cause. But the most decisive proof of cholera's being the effect of malaria is to be found in the fact, that many of the most obstinate cases of remittent fever, which have occurred in this district, commenced with this disease. During the au-

their employment must be conducted with caution, and their effect must be watched. When their exhibition is followed by considerable sweating, which exhausts the patient, and very rarely indeed proves critical, they should be immediately withheld. I do not know a more dangerous error, than the endeavour, in cases where there is reason to apprehend that depletory measures have been carried too far, to supply the place of the blood, improperly abstracted from the veins, by large quantities of wine poured into the stomach. Such practice wrings from the patient most debilitating sweats, and speedily exhausts the little strength which the former error had left. Small quantities of wine with water or sago, alternated with beef-tea or chicken broth, free ventilation, extreme cleanliness, and small doses of opium, or hyoscyamus in camphor julep, are the safest remedies of this melancholy state, which we now less frequently witness than we did a few years ago.

Opium, and other narcotics. — I have already expressed the opinion, that there is occasionally in fever, a disproportion in the degree of affection of the vascular and nervous systems, and have to add, that as that of the former sometimes preponderates, and requires the free depletory measures advised in the more excited form of the disease, so occasionally does that of the latter, which demands the employment of some of the

medicines mentioned at the head of this section. These are not applicable to a depressed state of the sensorium, whatever may be that of the vascular system, but strictly so to one of sensorial and nervous excitement with a *comparatively* undisturbed condition of the circulation. This state, when it endures through nearly the whole course of the disease, constitutes what is not improperly termed the "nervous fever" of some authors. This mode of febrile action is more frequently found in females than in males, and in the latter is most frequently observed in the more delicate and sensitive. The pulse is frequently very calm, perhaps scarcely exceeding ninety, throughout the whole course of the disease; the heat of surface is not considerable; the urine deviates but little from its ordinary character, excepting at the very commencement of the disorder, when the vascular excitement is greatest; the alvine excretions are generally somewhat vitiated, displaying more frequently excess than deficiency of bile, though occasionally the latter; the affection of the head scarcely ever amounts to delirium; but the morbid sensibility is excessive. The slightest noise is distressing, and causes great agitation; and sounds imperceptible to others are distinguished by the patient. A lady labouring under this form of fever, told me she could readily hear a pin drop on the carpet, using this expression in its literal

sense. The sensibility of the retina is not quite in proportion to that of the auditory nerve, though light is not well borne. The watchfulness is great, and the patients complain much of it and of the tossing and restlessness which attend the disease. The temporal arteries do not throb much, and pain of the head is not very much complained of. Loss of appetite and thirst attend this, as other forms of fever. The tongue is usually dry, but clean, and has a glazed appearance. There is generally some affection both of the bronchial lining and of the mucous membrane of the intestinal canal; the former indicated by cough, and by the stethoscope; the latter by uneasy feeling in the abdomen, and by pain on pressure there. The cases are exceedingly lingering, frequently lasting nine or ten weeks. The debility in convalescence is as great as after more violent attacks of fever.

A small general bleeding at the commencement of this disease does no harm, but it may frequently be dispensed with. Local bleeding from the head, chest, or abdomen, is often required, and proves very beneficial. The ordinary laxatives should not be neglected, and the biliary secretion should be attended to by alterative doses of calomel or hydrargyrus cum cretâ. Any deviation from a cooling diet has generally been followed by an aggravation of uneasy feeling, which has warned the medical attendant, and

even the patient, to retrace speedily their steps. Narcotics, and especially opium, are of the greatest value. Occasionally this drug has been given in a full dose at bed-time; but the preferable mode of employing it is in small doses, repeated at intervals of about four hours. I have given generally at such periods two minims of Batley's liquor opii sedativus, or black drop, or three or four grains of Dover's powder, in saline julep, or any cooling vehicle. Its effect in diminishing morbid sensibility, and the general uneasy feeling of the patient, is admirable.

It not unfrequently happens, that towards the close of a disease of a much more violent and acute character than that which has just been described, there is a great subsidence of vascular disturbance, but an incessant, vivacious delirium, particularly at night. I have found the patient with a pulse not very frequent, soft and weak, and his skin tolerably cool, but with considerable subsultus tendinum, loquaciousness, and jactitation. Narcotics, especially opium, are the remedies of this state; and in no case is the efficacy of this admirable drug, many of our obligations to which our very familiarity makes us almost unconscious of, more conspicuous. I have generally, in such cases, given a full dose at bed-time, and a smaller one in the morning, cold stupes being at the same time applied to the head or omitted, according to the temperature

of the surface; and restoration to health has been the uniform result of the practice. Along with the opium in these cases, I am in the habit of allowing, and with benefit, a moderate proportion of wine; for a certain analogy between the symptoms of this state and of delirium tremens has struck me, and I have conceived that a like resemblance might exist in the condition of the sensorium. The result, as has been already intimated, has appeared to justify the inference.

The diet and regimen of febrile patients, in ordinary circumstances, are now so well understood, not only by all ranks of medical men, but almost by nurses, that to offer any remarks on them, beyond those already hazarded respecting fermented liquors, would be but the tedious repetition of an oft-told tale.

one stool yesterday, which was of natural appearance.

To take the calomel and colocynth pills, and use the warm bath.

14th. He complains of great lassitude and debility. His complexion, which had begun to clear, is again obscured. He had but one stool yesterday, which was white. Some obscure pain is elicited by pressure on the right hypochondre.

Sumat ter die Pilulæ Hydrarg. gr. v.
Olei Ricini ʒj. statim.
Applicetur hypochond. dextro Emplastrum Lyttæ.

16th. Gums are sore: stools still white.

℞. Infusi Sennæ ʒiv.
Tincturæ Gentianæ comp. ʒij. M. et statim sumatur.

17th. Had one white stool from the physic yesterday. Pulse 58, and weak. No pain. He vomited some bilious matter yesterday. He complains much of thirst.

℞. Extracti Aloës gr. x.
Saponis Hispanici ℈j.
Olei Menthæ, gtt. iij. M. et divide in pilulas vi. quar. sumat ii. ter die superbibendo haustum sequentem: —

℞. Infusi Gentianæ comp. ʒij.
Sodæ Carbonatis gr. x. M.

These medicines were continued with little or no change of symptoms till the 23d, when he had severe pain in the right hypochondre.

hence arising may occasionally be obviated in inflammations seated in the abdomen, by our being able to elicit it by pressure. In those situated within the cranial and thoracic cavities, it is obvious that this procedure can avail us nothing; and its application even to the organs placed in the posterior part of the abdomen, and covered by a thick muscular layer, of which the kidneys are an example, furnishes but very doubtful results. Viscera, too, which are already painful, become occasionally more so on pressure, though they are in a state rather of irritation than of inflammation: of this the stomach furnishes a familiar example. On examination after death, certain internal tissues of our frame are not found swollen, though they have been affected with inflammation: of this we have instances in the serous and mucous membranes: and, unquestionably, inflammation, as has already been observed, may exist in life, yet leave no redness in death.

This is a specimen of the objections to which almost every nosological definition is subject. In internal inflammations, we must, of course, leave the visible phenomena out of the question, and be influenced by the constitutional symptoms, by the lesion of the function of the organ affected, and, to a certain extent, by the presence or absence of pain. If a part be readily accessible to pressure, and this elicit no pain, we shall scarcely

be warranted in predicating of it, that it is the seat of inflammation. Auscultation aids materially our power of discriminating phlogoses situated within the thoracic cavity.

2. *Constitutional symptoms.* In a brief sketch, such as is strictly intended here, it is sufficient to state that the most general and important of these, when the local affection is of sufficient acuteness and extent to call on the constitution to sympathise considerably with it, is the well-known inflammatory fever, indicated by increased force and frequency of the pulse; skin above the natural temperature, and generally dry; urine high-coloured.

The state, of whose signs this succinct account has been given, varies in duration, from a few days to many weeks, months, or even, perhaps, we may add years. A popular mode of dividing inflammation into acute and chronic, is founded on this difference of duration. In extreme cases there is no difficulty; but occasionally an intermediate degree will occur, which cannot be easily referred to one division or the other.

I may remark, that this morbid process is regarded by certain pathologists of the Continent, some of whose opinions have already been examined, as being always a mere exaltation of the ordinary organic action of the part; consequently it must be uniformly the same in kind, modified solely by the structure of the part, but capable of

varying in degree. Further, these pathologists attribute to this state all morbid formations, by whatever name, tubercle, cancer, melanosis, fungus hæmatodes, &c. they may be designated. These two views conjointly must rest on the postulate, that the organic actions of our frame can deviate from the healthy state only by excess or deficiency; and even the latter is suggested merely as a sort of after-thought.*

These sweeping generalities, the resemblance of which to Brunonianism is very obvious, would have attracted more attention in this country fifty years ago, than in the present day. We are now essentially a useful people—no admirers of that "*noble inutilité*" so much lauded by Madame de Stäel; and as these opinions fail in their practical application, they will here meet with neglect. Every practitioner knows that, however early he assails these morbid growths by the ordinary remedies of inflammation, he cannot check their progress, still less remove them. With regard to many of them, as cancer (see Fearon on that disease) and tubercles, the same opinion once existed in this country; but its practical inutility has consigned it to neglect. On mere theoretical grounds such views are objectionable; for we are too little acquainted with the natural condition of these organic properties

* Thomson, "Traité de l'Inflammation, traduit de l'Anglais par Jourdan et Boisseau," p. 3., note of translators.

to be warranted in declaring that they can err only by excess or deficiency. Were inflammation merely an excess of the natural organic contractility and sensibility of a part (I am here employing the inaccurate language of those whose doctrines I am canvassing), and were all morbid growths its product, we should expect a certain correspondence between the healthy structure of an organ, and a morbid growth existing in it; or at least, as, according to the doctrines of the *médecine physiologique*, inflammation is modified by the texture of the part which it occupies, we should not expect the same morbid growth in different structures; but some of these growths, cancer, melanosis, encephaloid tumours, &c. occupy various and widely-different tissues.

Nature of Inflammation.

This seems the most correct designation of what is commonly termed the proximate cause of inflammation. By the expression proximate cause, is generally meant, if I mistake not, either the whole, or the most important of those interior changes of state in our frame, which give rise to the visible and sensible phenomena, constituting the nosological characters of diseases. The term is an improper one; for it is to consider part or the whole of the changes which actually constitute a disease as its cause, or, in other words, a thing as a cause of itself. It is true, that the pain, heat, redness,

and swelling which form the general phenomena of inflammation are caused by a certain state of the blood-vessels, and probably of the nerves; but these phenomena are no more inflammation, than extension and resistance are matter, or than thought and feeling are mind; they are merely perceptible indications of its presence.

The same reasoning will apply to what are improperly termed the proximate causes of other diseases. They are generally effects immediately preceding, or co-existent with certain other effects, and will in most instances be found to be the maladies themselves. Were, for instance, inflammation of the mucous membrane of the great intestines declared to be the proximate cause of dysentery, then dysentery would be only another expression for such inflammation; and the griping, tenesmus, mucous and bloody evacuations would be manifest signs of its existence. This reasoning seems impregnable, unless the advocates of proximate causes mean to assert that the external, perceptible phenomena are the disease itself, and the interior change or changes of state merely its cause or causes. I have already endeavoured to prove of one disease, that its symptoms, and our scrutiny, show not only one, but several internal changes of state; and that the present amount of our knowledge does not warrant our concluding that any one of these is the original of all the others.

Pathologists cannot be said to have obtained notions perfectly precise of the state of the blood-vessels, on which the symptoms of inflammation depend. Two points only may be considered as established: first, that there is a greater afflux of blood to an inflamed part; and, secondly, that the capillaries of that part are more dilated, and contain more blood than in health. The first point is shown by many facts, and, among others, by the very obvious one, of the increased size and force of the pulse of the radial artery of that side on which there is a whitlow. The second is visible in inflammations of parts possessed of a certain degree of transparency; in those of the eye, for instance, and in those produced by experimentalists in the web of a frog's foot; and is discovered in the examination of persons who have died from inflammation of internal organs. But whether this dilatation be of an active or passive nature, whether the blood circulate more rapidly through the actively-dilated vessel, or more slowly through the relatively-weakened one, is "adhuc sub judice."

Fortunately, experience has taught us to do much for states of the system, with the precise nature of which we may be but imperfectly acquainted. But, besides the result of experience, the practical inference to be deduced from one of the undisputed facts of inflam-

mation — the increased afflux of blood to the part affected — would be the diminution of the vis a tergo by bleeding and other evacuants. Probably, too, the same procedure is a legitimate inference from the distention of the capillaries of the part, whether their dilatation be active or passive. The appropriate local treatment would appear to be considerably involved in the decision of the question as to the active or passive nature of this dilatation. The fact may prove to be, that this very local treatment, which should have been deduced from the clearing up of the doubt, may serve to elucidate it; and that practical men may be competent to decide a question which has divided experimentalists. The eye will furnish the "experimenta crucis." In catarrhal inflammation of the conjunctiva, the solution of nitrate of silver may be applied from the commencement of the disease; the dilated vessels will contract under its use, and the disorder be speedily removed. If the same means be adopted at the *beginning* of sclerotic and corneal inflammation, the disease will be aggravated; but in their advanced stage it may be employed with advantage. Hence we may infer that in certain inflammations the vessels are passively dilated throughout, and that in others their weakened state occurs only towards the close, probably as a result of the previous excitement. This conclusion, which is the *mezzo*

termine attained by Dr. Thomson by a different path from that which I have chosen, would prove that, as is often the case in disputes of this kind, both parties are right. In internal inflammations, neither view will invalidate the principle of diminishing the momentum of the blood, when the constitution sympathises with the local affection.

It is not an unimportant question what part the nerves play in the production of the phenomena of inflammation. The pain will be conceded to them; but that may arise from their being pressed by the over-distended blood-vessels; and as it is much felt in throbs corresponding to the dilatation of the vessels, there can be little doubt that it is at least aggravated by that distention. From the influence which Mr. Brodie has proved the nervous system to possess in the production of animal heat, that of the part may be fairly attributed to them. But the instrumentality of the nerves in generating inflammation may, perhaps, be again examined, when we consider the efficacy of opium in its treatment. To proceed with the ratio symptomatum,—the redness evidently arises from the part containing a greater quantity of blood than usual; whilst the swelling results partly from this cause, and in part from effusion.

As this work does not profess to furnish a formal dissertation, which shall exhaust every

part, the most trite and familiar, as well as the more abstruse, of each subject discussed, the reader is referred, for the consideration of the remote causes, such as mechanical and chemical irritants, morbid poisons, the application of cold, &c. to systematic works on inflammation, particularly to Dr. Thomson's valuable treatise. I shall merely observe, that the phlegmasiæ frequently occur, as do many other diseases, without our being able to trace them to any cause clearly ascertained.

Treatment.

In my remarks on this I shall take acute inflammation as the type, leaving the modifications required for the slighter and slower forms of the disease to the judgment of the reader.

General blood-letting.—It is probable that the employment of this, the grand antiphlogistic, which has existed from very remote antiquity, was deduced, originally, less from any precise ideas of the pathological state of the part immediately affected, than from the excitement of the general system which attends it. In this climate it cannot be prudently dispensed with in any considerable inflammation of an important organ. On the continent of Europe, where the practice in all acute diseases was, a few

years ago, infinitely less decisive and efficacious than in this country, I have frequently seen it omitted, and always injuriously; often, indeed, fatally to the patient. This error, I learn from medical publications, is now corrected; whether the physicians there may not have fallen, as has been asserted, into an opposite one, that of excess, which, I think, was recently ours, I do not feel myself competent to decide. It is impossible, I admit, to lay down precise rules for the avoiding either of excess or deficiency; for the requisite quantity must be deduced from so many data, the degree and site of the disease, the age, strength, and general habit of the patient, the relief afforded by the flowing of the blood, &c., that the experience and judgment of the individual prescribing must be taxed to decide it. But I will venture to remark, that in violent inflammation of an important organ, in a strong vigorous adult, a quantity less than twenty ounces is small, and one above thirty ounces is large, for a first bleeding. Differing from many estimable authors, I should prefer that the effect remained within rather than actually reached syncope, having frequently seen a sort of reaction occur, on the revival of the patient from that state, which seemed prejudicial to the disease. Fainting produced by small quantities of blood drawn from the patient in an erect posture, I have never found of any service

in subduing inflammation. The diminution of quantity is requisite for a permanently beneficial effect; mere momentary faintness without this does nothing, and is even occasionally injurious.

The repetition of blood-letting, and the extent to which it ought to be repeated, must depend upon so many circumstances, that it is scarcely possible to describe them all. Excess is, perhaps, the error into which an inexperienced practitioner is most likely to fall. The experienced and observing may be a law to themselves; but to a different class I beg to recommend Dr. Marshall Hall's work on the "Diseases of Females," as containing valuable suggestions for their guidance. The first, second, and fourth cases of chapter the eighth, are calculated to furnish ideas applicable to other states than the puerperal. I should not deem it right to continue to bleed because the blood still showed the buffy coat. This would prove a dangerous rule in many cases, but especially in inflammations depending on a fixed mechanical cause, such as tubercles in the lungs. When the momentum of the circulation is considerably diminished by *general* bleeding, should inflammatory action still be proceeding, cupping or leeching will be the only safe modes of drawing blood.

Besides the persons previously mentioned * as

* Vide p. 118.

requiring particular caution in the employment of blood-letting, there is another class of individuals who from bodily structure bear ill this mode of depletion. These are persons, who, from a natural thinness or weakness of the parietes of the heart, have constitutionally a very languid circulation. To an ordinary observer they will often appear strong and robust, for they are frequently large and florid; but their freshness of colour will generally be observed to have a purplish tinge, as if depending on venous plethora; and their fleshiness will be found to be rather cellular and adipose, than muscular. On exertion, they are readily out of breath. If their circulation be examined, the pulse at the radial artery will be found small and weak, and the heart explored under the left mamma gives a feeble impulse. A heart like this, naturally too feeble, may be reduced to such a state of debility by very large bleedings, as to be totally unfit for the office it has to perform. If I mistake not, the death of a medical man in London, which, from a peculiar circumstance connected with it, produced some sensation, arose from bleedings too large, which a structure such as has been described ought to have forbid. Inflammation is perfectly compatible with this structure, and must be subdued by the appropriate remedies; but still I hold that not a drop of blood should be shed that can be spared. It is but right to

say, that in the case alluded to, the bleedings were performed, if not by the patient himself, certainly by his order.

I shall take the liberty of remarking, that the ideas of inflammation and strength are rather too closely associated in the minds of medical men. We do not bleed a patient labouring under inflammation to weaken him, but to cure the disease. The weakness is a contingent result, and frequently an unfortunate one. Inflammation and weakness are perfectly compatible; and though the existence of the former will enable a feeble person to bear depletion which he could not sustain when in his ordinary health, yet must the constitutional debility furnish a check on the extent of our measures.

Should much weakness remain in convalescence, which will be often found to be the case, where the bleedings, however correctly adapted to the demands of the inflammation, have yet been great, it constitutes a disease requiring attention. Its indications are great frequency, and often even hardness of the pulse. With respect to the former point, I have known the pulse remain for weeks at 120. Regarding the latter, I would remark, that though it feel hard, yet to an experienced observer this feeling is accompanied by one which conveys an idea of emptiness, as though the vessel were obeying the impulse of an irritable heart contracting on

a small quantity of blood. The other indications are, a peculiar pallor of the countenance, happily compared by the late Mr. John Bell to the appearance of a wax cast, alternated with transient hectic flushings of the cheeks. The lips are almost bloodless, and if the tongue and gums be examined, they will be found so too. The sclerotic coat of the eye has an unnatural pearly whiteness. The patient sweats much, and is out of breath on the slightest exertion. The legs are often œdematous. This state, I repeat, requires attention; for I have known it lay the foundation of consumption. A draught, containing twenty drops of diluted sulphuric acid, and five drops of tincture of opium, administered three times in the day; sponging with tepid salt water, which, as the strength improves, may be exchanged for the cold salt water shower bath; pure air, light, nutritious diet, without much stimulus, and, should costiveness require it, an occasional dose of the compound rhubarb pill, are its most suitable remedies.

An appearance has been mentioned on which I feel disposed to offer some observations, though the reader may regard them as rather of a speculative than a practical nature: it is the buffy coat, or size on the blood. I do not feel satisfied with the explanation usually given, that the slowness with which the blood coagulates

permits the subsidence of the red globules from the fibrinous portion. The accuracy of this explanation seems questionable, for two reasons; first, because, in strong inflammation, the size is perceptible, floating on the surface of the mass, almost immediately after the blood has flowed from the vein; and, secondly, because the imputed slow coagulation of sizy blood is really not very evident. If I do not mistake, this oft-stated fact was put to the test of experiment in the Royal Infirmary of Edinburgh, if not immediately by Professor Home, at least by his direction, and negatived: there being no difference in the time required for coagulating between sizy blood, and that which did not assume this appearance. The more probable explanation seems to be, that in blood which displays the buffy coat, the fibrine exists in a more separable condition than in the healthy fluid. Many facts tend to show that the perfection of the living chemistry depends upon the healthy state of our organs. Is the stomach disordered, our food undergoes the acetous fermentation, or runs into putrefaction. Are the coats of the bladder in an unhealthy condition, calculi form. These are examples of the triumph, if I may so express myself, of the ordinary laws of inorganic matter over the vital processes. Blood subjected to the control of healthy organization, is constituted according to the laws of

animal chemistry. When a diseased state of the blood-vessels occurs, it is disposed to obey those of inorganic matter, and the fibrine and red globules which in health form a homogeneous mass, separate according to their respective gravities. This increased tendency to separation is shown in the products of inflammation, the consolidation of parenchymatous structures, pseudo-membranous exudations, &c.

It has been stated, that to continue to bleed, because the blood still retains a sizy appearance, would be an unsafe procedure. From many facts, I am convinced that it would be so; and it receives no encouragement from the hypothesis just advanced, for we cannot always *cure* inflammation by bleeding; we can only, in many cases, so far reduce it, as to enable nature to complete the work.

Mercury.—The great agent already considered seems to operate principally by diminishing the momentum of the whole circulating mass, and by tending thus to lessen the laden state of the capillaries of the part affected, to aid in curing the disease. The salutary action of that which we are now about to notice, appears to be more directly on the capillaries themselves. Its effect on the movement of the general circulation is exciting rather than depressing. Hence I should consider it *per se* as scarcely a remedy of inflammation at all, excepting of that of a very slight

or chronic character, where the momentum of the circulation is little or not at all increased; but in every important phlogosis, as strictly subordinate to blood-letting. Even in those forms of inflammation, attended with abundant deposition of lymph, such as iritis and croup, over which its influence is most conspicuous, blood-letting should precede or accompany its employment. So far subordinate is it, that in a considerably excited state of the system, it is actually impossible to produce its salutary effect; but, this once abated by appropriate depletion, we find it an agent of wonderful importance and power.

There are few inflammations in which we may not employ it beneficially. Over those of the muscular and fibrous tissues in general, of which rheumatism and iritis are examples, its influence is very conspicuous. In those of serous membranes too, as pleurisy and peritonitis, we may employ it with great benefit; and even in the most fatal of this order, acute hydrencephalus, if any thing can avert fatality, it is mercury, with general or local bleeding, or both, according to circumstances. It is perhaps less decidedly beneficial in the ulcerative inflammations of mucous membranes, than in the adhesive, of which croup is an example; but in the former it should not be neglected. In those of parenchymatous structures it is a powerful instrument,

especially in that of the liver, where its influence is twofold; firstly, by its direct action on the capillaries of the organ; and, secondly, by emulging retained, and exciting healthy secretion. Acute inflammations of the skin being generally specific, its effect in their cure, excepting as a purgative, will not of course be tried. Erysipelas forms an exception; derangement of the functions of the liver being so considerable a feature in this disease, that there are few disorders in which the mineral is more required or more beneficial. Of the chronic inflammations of the skin, arising from derangement of the general health, or from the agency of the syphilitic, or other morbid poison, this is not the place to speak.

There are certain inflammations in which it is inexpedient to employ this mineral. Those depending upon tubercular formation, present important exceptions to its useful exhibition. Though agreeing with Bayle and Laennec in considering the formation of tubercles in the lungs to be independent of inflammation, yet I cannot shut my eyes to the fact, that their presence there gives rise to it. Their existence between the coats of the intestines produces inflammation of the mucous membrane, its ulceration, and the colliquative diarrhœa of consumption, of which facts I have repeatedly had the evidence of dissection. In these cases, in

tuberculated liver, and in the tubercular state of the peritoneum, so well described by Dr. Baron, mercury will be found prejudicial.

In all scrophulous inflammations, wherever situated, I should think any thing like its full action exceedingly improper. Though distrusting very much the exclusive chylopoietic hypothesis of scrophula, I should not see an objection to the correction of occasional biliary derangement, either in this or any case, by a few mild alterative doses, nor to its employment now and then as a purgative, if required. My objection, in tubercular and scrophulous inflammation, is to any attempt at cure by acting generally on the system.

Though a state of high excitement precludes altogether the action of mercury on the frame, yet is there required a certain degree at least of tone, if not of excitement, to support this action. I should think its judicious employment inconsistent in any case, with a state of positive debility.

Antimony. — My experience of Professor Rasori's practice of administering tartar emetic in large doses, is confined to its effect upon inflammations of the head and chest. In both I have found it useful; but over neither has its power been such as to lead me to conclude, that it can, in this climate at least, supersede the necessity of blood-letting. But it seems probable that in

many cases it will spare the patient a considerable number of ounces of blood; a point of great importance. I have never found any difficulty in administering a grain or a grain and a half every second or third hour, in an ounce of fluid. The first and second doses generally produce some degree of vomiting and purging; but subsequently the *tolerance* of the remedy rarely fails to be established. If its employment be continued for some days, it will be found in general necessary to administer purgatives, as it has then a constipating effect. It is an admirable remedy in the bronchial inflammation of children, administered in doses proportioned to the age of the patient.

Colchicum. — This medicine, in my practice, has been employed principally in rheumatism, and the inflammatory affections of the heart connected with it, which will subsequently be described. At once, by its action on the exhalents of the intestines and kidneys, and by its narcotic power, it yields to few remedies in the relief it affords.

Opium, and other narcotics. — It rarely does harm to alleviate pain; and it is only at the very height of the inflammation, when opium, apparently by suspending the secretions, is really prejudicial, that we need abstain from its employment. When the intensity of the disease is in some degree subdued by depletory measures,

should the sense of uneasiness appear to require it, we need have little hesitation. Combined with calomel, and a proportion of antimony or ipecacuanha, few indeed are the inflammations in which we may not administer it with benefit. In pneumonia and hepatitis, by suspending in the one case the bronchial secretion, in the other that of the liver, I have thought it injurious; but in these diseases the pain is rarely so acute as to demand its interference. In phlogoses attended with more intense pain, as those affecting the pleura, pericardium, and peritoneum, and in rheumatism, we may give it fearlessly under the circumstances specified. In inflammation of the mucous membrane of the stomach and bowels it is of great power, as has been well pointed out by Dr. Armstrong; and in that of the bronchial lining, in the advanced stage, combined with antimony, ipecacuanha, or squill, it is very beneficial if the cough prove troublesome.

Should the patient be overdone by the depletory measures employed for subduing the disease, I need scarcely remark that this medicine will be his chief prop and stay. In different circumstances, when appearances have led us to conclude that inflammation and vascular excitement still remain, we shall probably learn from its effect, that local and constitutional irritation are the only remaining enemies we have to contend with.

This statement, that what has been inflammation becomes mere irritation, and the converse of this, that irritation may pass into inflammation, a fact of which the following case, selected from many, furnishes evidence, must lead to the belief, that the nerves of the part affected are primary and important, not mere secondary, agents in producing the phenomena of this disease. During the height of the complaint, the affection of the nerves seems to be submerged in the more important vascular disturbance.

A lady had been long subject to severe attacks of pain in the stomach, commencing with slight, but steadily-increasing uneasiness, and in a day or two amounting to intense agony. The failure of opium to give relief to this state when it reached its acmé, the nature of the pain, its excessive increase on pressure, the instantaneous rejection of every thing swallowed, the state of the circulation, the benefit derived from general and local bleeding, blistering, &c., and the very sizy appearance of the blood drawn, all led the medical attendants to conclude (I believe correctly) that inflammation of the stomach existed. Since she was advised, some years ago, to allay the very first feelings of uneasiness by black drop, she has had no attack of severe pain, and has lost no blood.

Of the whole class of narcotics I find opium the best, and of its preparations I prefer black

drop, excepting for an astringent purpose, as in diarrhœa, when solid opium, or laudanum, is more powerful. Mr. Battley's liquor opii sedativus is a good preparation, and, in all cases attended with vascular excitement, is preferable to laudanum; but, in such cases, it does not appear to be equal to black drop.

Were I to recommend any medicine of this class, in the intense stage of inflammation, it would be digitalis. I believe that the effect of this differs less than is commonly imagined from that of opium. Both lessen the frequency of the circulation, digitalis more considerably; and with this diminished frequency there is from both an increase of force of the pulse. Both allay pain, and induce to sleep; but in these respects opium is by much the more powerful. Their effects on the secretions are certainly very different. Digitalis seems to have no influence upon any but those of the kidneys, and on them it would appear that its operation is not immediate, but rather indirectly through the absorbent system. If, as was shown by Dr. Withering, digitalis be given to a healthy man, no diuretic effect is produced; but if it be administered in dropsy, the effusion is often rapidly removed, the discharge from the kidneys being increased, obviously from the quantity of fluid brought into the circulating mass, from the augmented power of the absorbents. Opium diminishes all but the per-

spiration, and this it lessens also in states of high excitement. This circumstance induces me to remark, that the effects of all medicines are frequently relative to the state of the system, so that experiments upon their operation on the healthy might lead to very erroneous conclusions respecting their influence on the diseased state; and we cannot always predict, from their effect in one disease, what it will be in another.

The other remedies of this class I shall pass over without any other comment, than that I agree with Dr. Hastings regarding the power of extract of hemlock, in allaying cough and irritation in chronic bronchial affections; and that we may generally so combine opium as to render it equally unobjectionable with hyoscyamus, which it excels very much in the power of soothing pain, and producing sleep.

Having entered rather fully into the consideration of local bleeding and blistering, in treating of the inflammations which accompany fever, I shall not offer any additional remarks on them here. Neither shall I add any thing to the opinion there expressed, of the comparative efficacy of cold stupes and warm fomentations in internal inflammations, but the suggestion of a friend, that the superiority of the former received a strong confirmation from their singular power, when applied to the pubes, of allaying the strangury from blisters. There can be no

doubt that when this affection exists in a great degree, it is a real inflammation of the mucous membrane of the bladder; for during it, large quantities of coagulated lymph are frequently expelled with the urine.

The very familiar subjects of purgatives, and the usually employed refrigerants and diaphoretics, may be passed over without comment.

as that anatomists during so long a time should have remained contented to believe that a *serous* membrane, like the pleura, could form a strong *fibrous* membrane like the pericardium." *

If this description of the formation of the pericardium be correct, and I see no reason to question its accuracy, then will the circumstance of this membrane being frequently assailed with rheumatic inflammation after bleeding be merely a part of the general fact long acknowledged, that this mode of treating the disease gives it a tendency to migrate from one portion of the general fibrous structure to another. Such continuity certainly tends to explain the frequency of the affection of the pericardium. But had the able anatomist whom I have quoted never demonstrated this connexion, the difficulty would not have been indissoluble; for the valuable papers on diffuse inflammation of Dr. Duncan jun. have shown that this morbid process may extend from one situation to another without passing through a continuous series of parts. †

A case fell in some degree under my observation, in which I had reason to think that fatal

* Anatomical Investigations, comprising Descriptions of various Fasciæ of the Human Body, &c., by John D. Godman, M.D., Lecturer on Anatomy and Physiology. Philadelphia, 1824.

† Transactions of Medico-Chirurgical Society of Edinburgh, 1824.

perienced members of the profession will not be deemed superfluous. We cannot attempt to cure rheumatism by bleeding, and other evacuants without imminent risk of causing metastasis (perhaps fatal) of the disease to an important internal organ, most commonly to the heart, its investing membrane, or both. It is true that we may treat the disease as cautiously as possible — however prudent we may be in the employment of evacuants, or should we abstain from them altogether — yet will its tendency to affect the heart be frequently found very decided; but I must say, that all the cases of speedy fatality that I have observed, have occurred after copious depletion.

Post mortem examination has generally shown the pericardium to be the *principal* seat of this secondary and fatal affection. On raising this membrane from the corresponding surface of the heart, to which it has been found loosely agglutinated by recently-effused lymph, that surface has presented a resemblance, from its colour, and the cellular appearance of the adherent lymph, to what is commonly called honey-comb tripe. The membrane lining the organ has participated in the inflammatory affection. On detaching the abundant lymph, which adheres strongly to the valves and chordæ tendineæ, it is generally found highly vascular.

The affection of the heart occurring without

real metastasis, the disease still remaining in the joints, which has taken place where depletory measures have not been at all or moderately employed, has either been entirely subdued by the means adopted, or has terminated in hypertrophy, or other chronic forms of cardiac disorder, requiring the adoption of the means which will be explained in the next Essay. I may remark generally, that when the heart or its investing membrane becomes affected, whether the disease still exist in the joints, or there be total metastasis, we have no refuge but in those decided depletory measures which are so much deprecated in the primary attack.

The muscular structure of the heart, and the fibrous nature of its investing membrane, furnish the only explanation I have to offer of the great tendency of the disease to assail, or to be translated to, these organs. If Dr. Godman's views be admitted, and they appear to be the result of very accurate examination, there is no difficulty regarding the pericardium; for it is positively continuous with a portion of the fibrous texture which is the seat of external rheumatism: "The layer," says he, "of the fascia superficialis, immediately covering the thyroid gland, described as the fifth process (p. 34.) passes under the sternum to the surface of the arteria innominata, where it is joined by the outermost layer of this fascia, covering the la-

teral and back parts of the neck. Together they form a covering for the artery as it is passing between the scalenus anticus and medius. Over the subclavian artery, from its inferior edge, the fascia extends outwards and downwards, running immediately below the subclavius muscle. Near the external edge of this muscle we find the fascia superficialis continuous with that portion of the brachial fascia which extends to the thorax under the pectoralis major.

We now cut away the cartilages of the four upper ribs on each side, and remove the sternum from the clavicles, having divided this bone transversely below the fourth rib. We are thus enabled to separate the upper part of the mediastinum and bag of the pleura from the pericardium. We then trace the fifth process or thyroid layer (in union with the outer part) of the fascia superficialis down to that part of the arch of the aorta where the serous membrane of the pericardium is reflected to form the immediate covering of the heart. The serous membrane being cut through, we can raise the fascia from the surface of the aorta, down to the commencement of the fleshy fibres of the heart, with as much ease as we can elevate the outer or floating portion.

However singular it may appear, that this arrangement should not have been discovered until this time, it is by no means as singular

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metastasis to the stomach took place, from the same abuse of depletory measures which so frequently causes it to the heart.

The question occurs, since the one line of practice is deprecated, what are we to do? Are we to adopt the reasoning and consequently the practice of Dr. M'Culloch, that those inflammations which are the product of malaria are *sui generis;* require a treatment the very opposite of that of plegmasiæ from other causes, namely, a tonic treatment; and that to this class of inflammations rheumatism belongs? Were the reasoning founded exclusively on the practice, my experience would declare it untenable; for instead of those advantages from bark, or any preparation of it, which the testimonies of many writers from Morton to Dr. M'Culloch would lead us to expect, I have found injurious effects in acute rheumatism, which alone we are now considering. This discrepancy of testimony may perhaps be explained by there being some difference in the nature of the disease, and consequently of its appropriate treatment, in certain districts and climates—*judicent peritiores.*

A moderate antiphlogistic treatment I have ever found the most suitable to the disease. From one moderate bleeding no inconvenience will be found to result to a person not above middle age; but we should not think of repeating it, nor even of making that one so large,

as we should in an internal inflammation in the same individual. Local bleeding, when the inflammation dwells long in any joint, may be safely and profitably employed.

Colchicum is of great use, at once by its sedative and purgative power. Should it fail to act on the bowels, some laxative may be advantageously combined, as for instance magnesia with the wine of the seeds, or the extract of colocynth with that of colchicum. Throughout the disease attention to an open state of the bowels is a point of great importance.

The attempt to cure the disease by heaping the patient with bed-clothes, excluding pure air, and administering diaphoretic medicines, is exceedingly distressing to him, and rarely attains its object. Yet if we give opium — and we should not be justified in withholding a remedy so valuable when the intensity of the inflammatory action is a little abated by the means already proposed — it is advisable so to combine it, that it may produce determination to the cutaneous surface. With this view, Dover's powder, or this combined with calomel, may be advantageously employed; or, what I find still preferable, opium, calomel, and James's powder conjoined. Should this combination affect the mouth gently, as it occasionally does, the most beneficial effect on the disease will at once be perceived.

My testimony for the utility of diaphoretic medicines is not invalidated by the failure of the spontaneous sweats, which form so conspicuous a feature of the disease, to give relief. The action of the cutaneous vessels induced by this class of medicines, which are really useful if not so employed as to over-heat the patient, may be essentially different from that which induces the unavailing perspirations just mentioned.

With the treatment described, we shall generally avoid, excepting in aged subjects, that tedious and unmanageable affliction, chronic rheumatism. The risk of this would certainly be less, did prudence allow us to proceed boldly in subduing the acute form by active depletory measures.

My experience is unfavourable to the warm bath, both as a means of relieving the fever and pain attending the disease, and with reference to the danger of metastasis, which we should ever hold before our eyes.

ESSAY V.

ON DISEASES OF THE HEART AND ITS INVESTING MEMBRANE.

THAT our power of detecting diseases of the heart is increased, I believe; but this increased facility of diagnosis will scarcely account for the augmented number of cases which we now clearly ascertain to be such. I cannot help suspecting that disorder of this organ is of more frequent occurrence than heretofore; and an examination of the causes which produce it, as it will unquestionably throw light on its frequency, so may it perhaps tend to render probable an opinion of its increased and increasing prevalence.

Causes.

These are either physical or moral, and in this order we shall consider them; but the result may perhaps show, that these classes of causes frequently co-operate, and that the cases are numerous in which it is difficult to apportion to each respectively its share in the production of the disorder.

Physical Causes.

Rheumatism.—This cause has already been adverted to; but, impressed with its practical importance, I shall bestow a little more attention upon it. I have estimated at one-half, the proportion of cases which are attributable to it; and my observation, so far as it extends, warrants the estimate to its full extent. *Now* when called to a case of affection of the heart, my first enquiry is, whether the patient has been subject to rheumatism, and the frequency of the affirmative answer, and of the coincidence between the first uneasiness in the region of that organ and an attack of this disorder, has surprised me. The fact that this cause has escaped detection by such men as Laennec and Bertin *, neither

* A friend, to whom I read this Essay after it was completed, showed me a similar remark on one of these writers (M. Laennec) in Dr. Scudamore's Treatise on Rheumatism, a work which I had not previously seen. There are other coincidences, I find, between Dr. Scudamore and myself. This is to me matter of any thing rather than regret; for such accordance confirms, so far as it goes, the accuracy of the views taken in the present volume. Considering the nature of this work, my having omitted to examine the most modern treatise on rheumatism may seem to require an explanation. The fact is, the etiology of diseases of the heart has engaged my attention for years, and I wished to give to the public the inferences from an extensive observation of these diseases as free as possible from any tinge of the opinions of others. Hence any coincidence with other writers

of whom adverts to it, may seem to furnish a strong argument against its being so general as it is here considered. But, in the first place, from the nature of our climate, it is probable that rheumatism is a disease of more frequent occurrence in this country than in France; consequently the proportion of cases of affection of the heart resulting from this cause will naturally be greater in the one situation than the other. Again, the former of these excellent writers has furnished a probable explanation of his silence respecting this cause, when he complains of the want of information regarding the anterior state of those patients whom he attended in hospital, compared with its superabundance in his private practice.* The extent of the establishment (La Charité) with which Laennec was connected, and the very praise-worthy attention bestowed by all classes of Parisian medical men on hospital practice, renders it probable that an immense majority of his observations were made in the charitable institution. Those whence my conclusion is drawn have always been made in situations where every thing relative to the patients' previous state of health was perfectly ac-

is an unbiassed confirmation of the accuracy of their opinions; and any views peculiar to myself may, I trust, be considered an addition to the sum of our knowledge.

* Traité de l'Auscultation Médiate. Ed. ii. t. ii. pp. 493, 494.

cessible; and in which, if I had any complaint to make, it was rather of the superfluity of evidence which occasionally disturbed Laennec.

In the former Essay, I stated briefly the nature of the rapidly-fatal cases which supervened on over-treated or rather improperly treated rheumatism; but neglect of rheumatism, and disregard of the first feelings of uneasiness in the heart, which generally occur during an attack of that disorder, is a source of protracted, and, too often, but partially-remediable suffering, scarcely less melancholy than speedy fatality.

This is frequently exemplified in seafaring persons in the merchants' service, who have not the benefit of medical assistance during their voyages, and, on reaching their port, too seldom avail themselves of it when required. Some of the worst cases I have witnessed have occurred in this description of persons. The labouring classes generally, as being more exposed to the causes of rheumatism, and less likely to attend to the necessary seclusion during its attacks, and more so to neglect the first indications of the heart's being assailed, present the greater number of deplorable cases of cardiac disease from this cause. But those in more affluent circumstances are by no means entirely exempt from it: indeed, its occurrence among them is sufficiently frequent to make the subject interesting to them on merely selfish grounds. When chronic disease of

the organ actually takes place, it is to them a less dreadful evil than to the poor labourer, who must struggle by bodily exertion for subsistence in spite of the enemy he nourishes in his bosom; yet is it the source to all of much suffering, many privations, and almost ceaseless peril. To every class of society the subject is one of great interest: to medical men especially so; for with them the responsibility will often rest of repelling the first assaults of the disease. The amount of suffering which timely attention will prevent is in no case greater than in this. If the disease be seized in its nascent state, in the majority of instances the mischief to be dreaded will be prevented, and, in less successful ones, its intensity will be much mitigated. Scarcely any age is exempt from disease of the heart from this cause. I visited lately a boy twelve years old, labouring under that form of cardiac disorder termed hypertrophy. I learned that he had been subject to rheumatism from his ninth year, and, to use his mother's expression, "the beating of the heart began with his first attack of rheumatic *fever*, and had been increasing ever since." For obvious reasons, such occurrences are much more frequent in older subjects.

It is a good remark of Laennec, that "certain affections of the heart as well as other chronic maladies present inequalities of frequency at different times; that many disorders, not com-

monly regarded as subject to the influence of the medical constitution, are really much more frequent at certain times than others."* Hence it may be alleged, that what I am now observing is a peculiar prevalence at a certain period. My attention was first awakened to this subject fully seven years ago, and during the whole of that time there has been no interruption to the occurrence of cases calculated to confirm the opinion that this cause is at all times acting. Many of these cases were of recent occurrence; whilst others had existed for years previously to their falling under my observation. I have a gentleman of education and intelligence under my supervision at present, whose complaints (now hypertrophy with dilatation) I learn from himself commenced thirteen years ago with rheumatism caught from exposure to cold at a funeral. By extreme care as to diet and exercise, occasional bleeding, and other subsidiary measures, he is still enjoying a tolerably comfortable existence.

As all diseases have their periodical frequency, so may there be a sort of locality in the prevalence of even those not usually supposed to be under the influence of any endemic or other atmospheric constitution. The observations, from which the inference here expressed regard-

* Traité de l'Auscultation Médiate, t. ii. p. 586.

ing the etiology of cardiac disease has been deduced, have been made principally, not exclusively, in one district; and the experience of medical men elsewhere may not confirm my opinion either of the frequency of this form of disorder or the cause whence it often originates. Should this even prove to be the case, the practical importance of these views will not be annulled; for what now exists here may subsequently take place elsewhere: and it can never be otherwise than useful to excite the members of our profession to investigation.

Excessive exertion. — This I am inclined to regard as a frequent cause of the disease, and suspect that the necessity for extreme bodily exertion which now exists in many of the employed classes of the community, serves to give the increase to this order of diseases which has been ascribed to them. It has appeared to co-operate with the former cause by aggravating into a serious malady what was but a slight indisposition. It is scarcely necessary to dwell on the mode in which this cause acts; the increase of the force and frequency of the circulation, and the consequent additional labour the heart undergoes. It co-operates, too, with the moral causes which will be subsequently adverted to.

Atmospheric vicissitudes. — Extremes of heat, by their stimulus to the circulation, may tend to produce this class of disorders; but I cannot

say that I have met with cases which could be clearly traced to this cause. The repeated and long-continued action of the opposite extreme, by repelling the tide of blood from the capillaries, and keeping the central organ of the circulation in a state of undue distention, has appeared to be occasionally operative. It acts most commonly through the medium of the first-mentioned cause, rheumatism; but some cases have led me to suspect that long-continued exposure to cold and moisture is not destitute of direct power in this way.

Atmospheric impurities. — The air of populous trading and manufacturing towns, laden with carbonic acid and carburetted hydrogen gases, and a considerable proportion of uncombined carbonaceous matter issuing from a thousand chimneys, cannot be incessantly respired for a series of years without effects prejudicial to the healthy actions, and I should conceive to the structure of our frames. The artisan who is sheltered from the atmospheric vicissitudes and violent exertion which are the lot of the sailor and the rustic, finds a counterpoise to this advantage in the impurity of the air he breathes. The paleness or yellowish tint of complexion, and the cachectic appearance, resembling the blighted aspect of the inhabitant of some close alley in a large city, which accompany certain diseases of the heart, lead to the conclusion, that

the organ is suffering, in common with the rest of the frame, from some perversion of the nutritive function. No more probable source of such perversion can be suggested than the corruption of the fountain of all nutrition by the impurities now mentioned.

Abuse of spirituous and fermented liquors is, both directly and mediately, a frequent cause of affection of the heart. The stimulating effect of such liquors on the circulation is well calculated to produce disease of its central organ, and frequently does so, occasionally directly, but more commonly as an auxiliary to rheumatism or the other causes specified. Some fermented liquors, especially those prepared from malt, seem to contribute to the same end by the positive plethora they produce; the heart and whole vascular system being unceasingly in a state of over-distention. More than one case of dilated heart with thin parietes has fallen under my observation in ale drinkers of very plethoric habits, and this seems the very form of the disease which such a cause would be likely to generate. In one of the cases, this cause seemed to have conspired with rheumatism.

But these dietetic causes more frequently affect the heart through the medium of derangement of the digestive organs. The palpitations which indigestion begets are familiar to all, so that the nervous sympathy between the stomach

and the heart is too acknowledged a doctrine of pathology to require comment. Functional disorder caused in this way may become structural; for palpitation is an excessive action of the organ; and the heart, like other muscular organs, increases in growth by undue exertion. When derangement of the digestive organs has proceeded so far as to alter the structure of the liver, then is irregularity of the heart's action induced by the interruption to the flow of blood through the vena portæ and cava inferior, and the irregularity thus produced may lay the foundation of disease.

Diseases of the lungs.—The probability that a tuberculated or hepatized state of lung, which impedes the flow of blood through it, should cause affection of the right cavities of the heart, is so very great, that it will surprise no one to find these two orders of diseases frequently associated.

The congenital disproportion between different parts of the heart, mentioned by Laennec, and between this organ and the diameter of the aorta, so much insisted on by Corvisart, may be considered as predisposing causes.*

Moral Causes.

These are powerful agents in producing diseases of the heart, the actions of which, as is well known, are much influenced by mental emo-

* Laennec, op. cit. t. ii. pp. 494—497.

tions. In the subordinate walks of life this cause conspires with excessive physical exertion: in the superior, it cannot be supposed to be thus complicated; but the greater sensitiveness engendered by habitual exemption from hardships and difficulties, and refined education, and the greater force of the causes of these emotions which are operative in the respectable classes of society, are sufficient to counterbalance any advantage arising from their uncombined action. The anxieties agitating a thousand bosoms from the fluctuations of commerce are a fertile source of these disorders. It is remarked by Corvisart, that their prevalence was greatly increased at the period of the French revolution, evidently from mental agitation. As I was walking through the wards of the Hôtel Dieu of Paris, in the latter end of 1815, my attention was attracted to a patient whose heart was beating violently. The poor man, seeing himself observed, said, "'Tis to the allies I owe this: my heart began to beat thus the day they entered Paris." He acknowledged that the wound inflicted on his patriotic feelings by this event had produced the disease I saw him labouring under; an acknowledgment highly creditable to him. These mental causes act like the abuse of fermented liquors, either directly on the organ affected, or through the medium of deranged digestive functions.

Thus it will be observed that all these causes are in constant operation in this country, and that certain of them "have increased, are increasing, and," perhaps, we may add, "require to be controlled." Our atmosphere is subject to many vicissitudes; rheumatism and pulmonary complaints are frequent among us; I am afraid, that, as a people, we are not temperate, though I do not believe that the vice of drunkenness is on the increase; our towns are the largest and most smoky in the world; there is no country in which the physical powers of the labouring, and the mental energies of the educated classes, are so much on the stretch; and none of which so large a portion of the population is equally exposed to the anxieties connected with the fluctuations of commerce. With respect to most of these causes, it avails little to enquire whether they be right or wrong. They seem to be the inevitable result of our advanced civilisation and crowded population. The physician, moralist, or even legislator could not correct them if he would. The proper view of the matter seems to be, that certain evils are connected with our present condition, but that there are amply compensating advantages. The merchant and artisan are exposed to some causes of disease and decay, from which the 'squire and the peasant were exempt; but, on the other hand, possess an immunity from some ills to which

they were exposed, and are unquestionably the more enlightened individuals.

General Symptoms.

The early detection of these disorders is so important, that it is desirable to have impressed upon our minds indications whence their existence may as soon as possible be inferred. A part of the following symptoms will, I think, be found in every case. Some of them certainly exist in diseases in which the heart or its investing membrane is not organically affected; but these are few, and attention to the degree of them, and to their combination with others of those enumerated, will generally enable us to come to a correct conclusion. I am not now about to present pathognomonic characters of the species of cardiac disease; but general signs, some proper to one form, some to another, from the permanence and combination of a portion of which our attention may be roused to more minute examination, which will generally be crowned with success, so far as the perfect discrimination of the disease is concerned; and in many cases, should we have been early consulted, be rewarded by a considerable degree of relief to the sufferings of our patient, and, in some cases, by their total removal.

Pain, more or less intense and permanent, is felt at the lower portion of the sternum, under the mamma, near the inferior angle of the sca-

pula, or even in the shoulder and arm of the left side. Deviation of the circulation from its healthy character in some of the following modes will often be detected: excessive force both in the heart's impulse, and in that of the arteries; force of the heart's impulse with smallness, or sometimes scarce perceptibility of the pulse at the wrist; excessive feebleness of the pulse, not to be expected from any general debility of the patient, *felt* both at the wrist and in the region of the heart. By applying the hand to the thorax we shall frequently discover that the heart beats over a more extended space than ordinary. It may be observed, that all examination, both of the cardiac and radial pulse, must be made when the patient is, and has been for some time, perfectly at rest. There is irregularity of the heart's action, not transient, but constant, so various in kind and degree, that it is not easy to picture all its shades. The following is, I think, the most frequent form of it. The pulse at the wrist will be found slow, perhaps, within sixty in the minute, and *comparatively* full; but mingled with these pulsations diligent observation will detect under-beats, very irregular as to their time of recurrence, some of them scarcely perceptible, others approaching in force to the distinct beats, and according as the whole or a portion of these under-beats is or is not included in our enumeration, the pulse will be deemed slow or frequent, regular or irregular.

The heart being examined, its pulsations will be found pretty nearly corresponding to those at the wrist, but probably more forcible than their state in the latter situation would lead us to expect. There are unfrequent, full, slow beats, in which the heart seems to be successful in propelling its contents into the artery, and between these there are feeble struggles or flutters, recurring irregularly, in which the ventricle seems to fail in this object, or to attain it very imperfectly. I shall here remark, that in certain diseases, especially in affection of the sigmoid valves of the aorta, the heart may have unavailing movements, in which nothing is propelled into the artery; and consequently, if every movement of the organ be considered a pulsation, there may be a difference of frequency between the cardiac and arterial pulses. Authors who have gone further, and asserted, that there may be a variation in the frequency of beats of different arteries at the same time, have, from incorrect observation or reasoning, affirmed a physical impossibility.

There can never be any difficulty in distinguishing the state of the circulation which has just been described, from the constitutional irregularity or intermittence of the pulse which accompanies many healthy individuals through the greater part of a long life; and which is so far from being an indication of sickness, that

when *this* occurs, as the late Dr. Gregory justly observes, the pulse becomes regular.

Besides the symptoms already enumerated, there are others of frequent occurrence, which either singly or in combination (particularly the latter) will assist us in forming a correct opinion. Exercise is ill borne, especially that connected with a considerable degree of muscular exertion, as ascending a hill or a staircase, when the patient will frequently be obliged to stop from a sense of faintness, indescribable anxiety about the thorax, or dyspnœa. The breathing is often short when the patient is undergoing little or no exertion. The sense of faintness, too, frequently takes place under the same circumstances. The countenance is unhealthy, having frequently a purplish hue very visible in the lips, which are prominent, whilst the vessels of the conjunctiva are laden with dark-coloured blood. The complexion is sometimes in a different state from this, having a very pale or a palish leaden hue, and the face being slightly œdematous. Palpitations often occur. There are frightful dreams, and the patient frequently starts from his sleep in indescribable terror.

The general symptoms of the advanced stage of the disease will be enumerated when we consider the concomitants or sequelæ of that stage.

Synoptical view of diseases of the pericardium and heart.

A general knowledge of the subject being necessary to the full understanding of the practical remarks which will subsequently occur, and to the illustration of the nature and treatment of those forms of the disease which are connected with rheumatism, it has appeared expedient to present the reader with the following concise synopsis of the more important disorders of these organs. His familiarity with the writings of Laennec and Bertin, to which I acknowledge my obligations in its construction, might have rendered it unnecessary; but this I felt I had no right to assume. The stethoscopic indications have been taken from their works; but they have all been confirmed by personal observation. Many of the common symptoms are drawn from this observation exclusively. If there be any merit in the general principle of the arrangement, the subdivisions of which are founded on the three general structures which form this compound organ, and which presents the changes in the order in which they occur to the eye of the anatomist, I may claim it as exclusively my own. I trust that the view will possess a utility independent of its connexion with the subsequent part of this Essay — that of leading the English reader to a more intimate

acquaintance with the invaluable sources of part of its materials.

SECTION I.

Diseases of the Pericardium.

Species I. *Pericarditis*, or inflammation of the serous membrane, which, after lining the fibrous sac of the pericardium, is reflected over the origins of the great vessels and the surface of the heart. This inflammation may be acute or chronic.

Anatomical character of the acute form.—Redness more or less considerable, concrete albuminous exhalation, and sero-purulent effusion. The redness is generally punctuated, as if the serous membrane of the pericardium were covered with small spots of blood placed near each other. The albuminous exudation does not present a smooth but a very irregular surface, compared by Corvisart to the second stomach of a calf. I have been more than once struck with its resemblance to honeycomb tripe. Its consistence and thickness are considerable. Its colour is pale yellow. The effused serosity is limpid, and of a citron colour; though occasionally the pericarditis is hemorrhagic, and then both the serous effusion and the surface of the false membranes are reddened. The quantity of the serous ef-

fusion is various, frequently amounting to a pound: Corvisart once found four pounds.

Chronic pericarditis occupies the whole of the internal serous surface of the entire pericardial sac. This membrane is more intensely reddened than in the acute form. There is rarely any pseudo-membranous exudation. In all cases there is liquid effusion, more or less abundant, opaque, lactescent, and sometimes altogether puriform. M. Laennec is of opinion that the intimate adhesion of the pericardium to the heart which we occasionally meet with is the effect of the absorption of this liquid; whilst the looser union (par de longues lames) is the product of acute inflammation. In the latter opinion I fully concur with this able author, having found such an adherence as he has described in acute inflammation; and the peculiar irregular appearance of the effused lymph, which has been mentioned, evidently arose from the separation of this recently-formed adhesion by raising the sac of the pericardium to examine the heart.

Those white plates on the pericardium, which we so frequently meet with, M. Laennec is disposed to acknowledge to be the effect of inflammation; a cause of organic change that he is very scrupulous of admitting. But he is not disposed to attribute to the same source the white, soddened, and softened appearance of the

muscular substance of the heart which is so frequently discovered in cases of pericarditis. This opinion, which I deem inaccurate, will probably be adverted to in a subsequent department of the Essay.

Symptoms of pericarditis. — Here, I confess, our authors leave us considerably at fault. Laennec acknowledges that when the circulating organs appeared to be in the best state, on *post mortem* examination he has been surprised to find a severe pericarditis of which nothing had led him to suspect the existence. In other cases he has found all the symptoms attributed by nosologists to this disease, and yet examination displayed no trace of it, nor any thing which could explain the disturbance of the circulation. He adds, that both he and others have sometimes *divined* (deviné) not recognized pericarditis; for he cannot think the latter word applicable to cases in which the opinion is not formed from any certain signs.

He furnishes the following stethoscopic indications, from the sudden occurrence of which in a person who had not previously had any symptoms of disease of the heart, the existence of pericarditis is rendered very *probable.* "The contractions of the ventricles of the heart give a strong impulse, and sometimes a sound more marked than in the natural state; at intervals of various duration more feeble and shorter puls-

ations occur, which correspond to intermissions of the pulse, of which the smallness is singularly contrasted with the force of the beatings of the heart; sometimes it can scarcely be felt."

Bertin presents us with the following general symptoms: fever, acute lancinating pain and sense of burning in the precordial region; impossibility of straightening the corresponding side of the chest, and of lying upon it; contractions of the heart *feeble* and irregular; great anxiety, with contraction of the features of the face; faintings, and continual jactitation with terror and despair; pulse *small*, frequent, contracted, unequal, irregular, intermittent, and as it were convulsive; dyspnœa, cold sweats at intervals; and in the more advanced stage lividity, puffiness, injection of the face, and œdema of the members.

For stethoscopic indications, he gives us only, and that doubtingly, the "sound of new leather," pointed out by M. Collin, of which I profess my total ignorance.

I shall now state the symptoms which I have observed in all the unequivocal cases of the acute form which have as yet fallen under my observation. All these cases but one have occurred from rheumatism; but in all, the symptoms were alike. These were acute pain and sense of heat in the region of the heart; great difficulty of breathing; extreme restlessness,

anguish, and anxiety; the patient lay on the back, and could not for a moment alter his position to the left side; the face was anxious and pale, or if flushings occurred, they were very transient, and it was bedewed with perspiration: there was frequent disposition to syncope. The action of the heart was in every case *bounding* and *forcible*, and the pulse *strong*, *full*, and frequent. In no other cases have I observed in an equal degree that rising of the jugular veins synchronously with the systole of the heart, which M. Laennec appears to consider distinctive of hypertrophy of the right ventricle.* This rising is, in these cases, not confined to the external, but is equally perceptible in the internal jugular. The size of the latter vessel secures us from confounding its movement with the pulsation of the carotid, which can be felt beating behind and within the swelling vein. I recollect being struck with this distention of the two veins in a case of pericarditis (proved by dissection to be so) in 1813, and pointing it out to a medical friend, who was at first disposed to attribute it to a convulsive movement of the muscles, as in fact it does give a singular agitated appearance to the side of the neck. But on more minute examination he concurred with me in referring it to the right cause, obstacle to the

* Op. cit. t. ii. p. 505.

entrance of the blood from the great veins into the heart.

In all the cases which I have examined, the muscular substance of the heart had that blanched appearance and softened texture which M. Bertin is disposed to attribute to inflammation, but to which M. Laennec denies such an origin; nor was the membrane lining the cavities of that viscus totally free from indications, certainly not unequivocal, of the same affection. Hence it may be argued that my portraiture of the symptoms has not been drawn from the unmixed disease. But if the observations of M. M. Laennec and Bertin be referred to, it will be questioned whether pericarditis ever exists without lesion of the heart itself at least as considerable as in the cases which have fallen under my notice.

Species II. *Hydrops pericardii*, or a collection of a greater or less quantity of serous fluids in the pericardium. This is very rarely indeed a primary disease, being generally a mere consequence of impeded circulation. We should not regard a quantity of fluid less than six or seven ounces as constituting this disease.

If a few ounces only be found, the effusion has probably taken place during the last moments of life, or has even been the effect of the agony of death.

The liquid is sometimes totally colourless and limpid; at others of a greenish or yellowish hue, or its limpidity is impaired by thin flocculi. Occasionally, in place of a purely serous effusion, we find a liquid of a reddish or blackish tinge from an admixture of blood.

The quantity of fluid varies: it rarely exceeds one or two pounds. Corvisart once found eight pounds.*

Symptoms. — These are unfortunately somewhat equivocal. Senac saw in the spaces between the third, fourth, and fifth ribs the fluctuations of the effused fluid. Corvisart never perceived the fluctuation in this way; but he has occasionally distinguished it by the touch. The following symptoms have been attributed to the disease: "painful anxiety and weight at the heart; difficulty of breathing, threatening suffocation in the horizontal position; faintings, and rarely palpitations; pulse small, weak, frequent, and occasionally irregular. The pulsations of the heart are felt tumultuous and obscure, as it were through a soft body, or rather a liquid placed between the parietes of the thorax and that organ. The precordial region gives a dull sound on percussion: in some cases it is more raised and rounded than the rest of the chest. The pulsations of the heart are felt sometimes towards the right, sometimes towards

* Sur les Maladies du Cœur, p. 53.

the left, in different points of an extended circle." *

I recollect a case, in which, besides having most of these symptoms, the patient remained for two or three weeks with his body leaning forward over a chair or table, the only position in which he felt tolerably comfortable. The operation was proposed, but not consented to. The case was fatal.

No *certain* stethoscopic signs have as yet been discovered.

SECTION II.

Diseases of the muscular Substance of the Heart.

Species I. *Hypertrophy*, or excess of nutrition of the heart; from ὑπὲρ, *super*, and τροφὴ, *nutritio*.

This affection was not unknown to physicians of the last century; Senac and Morgagni having both mentioned it†, the latter designating it very appropriately, "præternaturale carnis musculosæ augmentum;" but both these writers considered it only in combination with another pathological state, dilatation. It was well known to Corvisart, but still only as combined with dilatation, the two constituting his active aneurism of the

* Corvisart, op. cit. p. 50.

† De Sedibus et Causis Morborum Epistola xvii. art. 21. et Epist. xxix. art. 20.

heart. For a knowledge of its independent existence, we are indebted to the two eminent pathologists, whose names have so frequently occurred in these pages, M. M. Bertin and Laennec; and I believe that strict literary justice, which is, perhaps, too apt to be busied in trifles, requires that we should bestow the credit due for the priority of this discovery on the former.

As an uncombined disease, it is certainly rare. It may affect either ventricle, or both in conjunction. It rarely assails the auricles.

Anatomical character.—When seated in the left ventricle, the parietes of this cavity acquire generally an increase of firmness, and always of thickness of texture. This thickness, towards the base of the ventricle, has been found to amount to an inch, or even eighteen lines: towards the point of the heart it is sometimes inconsiderable, occasionally great. The columnæ carneæ, the pillars of the valves, and the interventricular partition participate in this increased density and thickness, though the partition less in proportion than the rest of the parietes of the ventricle. The hypertrophy is occasionally partial, one part being much more developed than another. Hypertrophy of the right ventricle is generally more uniform than that of the left. Its parietes are thicker and more firm than in the natural state; but its developement is most conspicuous in the columnæ carneæ, and the pillars of the tricuspid valve.

This disease is compatible, not only with an unaugmented, but even with a diminished, capacity of the ventricles. In this last case it constitutes the concentric hypertrophy of Bertin.

In hypertrophy the coronary arteries are generally much developed, one of them occasionally a good deal more so than the other.

Symptoms of hypertrophy of the left ventricle.

These are just what might be expected from the pathological state which has been described. They all indicate excess of power in the organ. The pulsations of the heart are violent, and, when the hypertrophy is considerable, seem to shake the whole frame; yet, even when this has been very perceptible to the bystander, I have known the patient unconscious of it, perhaps, from familiarity. The organ can be felt bounding strongly against the hand applied under the left mamma, and it is often visible over a greater or less extent of the chest, according to the degree of the disease. The pulse of the arteries is in general regular, full, strong, hard, and vibrating; excepting when the capacity of the ventricle is diminished by the disease, when it loses its fulness, but retains its other characteristics.* Percussion over the region of the heart

* Laennec thinks the pulse is very treacherous in this disease, and that it is as common to find it feeble as strong.

gives a dull sound, a diagnostic of some importance, excepting when the patient is fat or œdematous.

The following are the *stethoscopic signs*, which for their due appreciation require only that the practitioner should be acquainted with the impulse and sound of the healthy organ through the instrument, and able to make allowances for the obesity or emaciation, and for the capacity of the thorax of the patient. The contraction of the left ventricle gives a strong impulse which raises the head of the observer, and the sound is more dull and prolonged than in the natural state. The contraction of the auricle is very short, but little sonorous, and in extreme cases scarcely perceptible. The impulse and sound are both limited, frequently not extending beyond the space corresponding to the left ventricle.

Hypertrophy of this ventricle is occasionally fatal by inducing apoplexy. Three distinguished physicians, Malpighi, Ramazzini, and Cabanis, who died apoplectic, were affected with it.

Symptoms of hypertrophy of the right ventricle.

The only general symptom, the swelling of the jugular and other veins, suggested by Lan-

I own that my experience coincides with that of Bertin, having always found it strong till the powers of life began to sink under the disease.

cisi, rejected by Corvisart, and admitted by Laennec, has been invalidated by an observation made under the head of Pericarditis.* We are thus left to the following stethoscopic indications, which may be relied upon : — the action of the heart presents the same characters, as to sound and impulse at the lower part of the sternum, as in the former case it did between the cartilages of the fifth and seventh ribs, only that the sound of the contractions of the right ventricle is rather less dull than in the other case is that of the left.

Pulmonary apoplexy and hæmoptysis are frequent effects of this form of disease.

When the two forms are conjoined, the symptoms will present a combination of those of disorder of each ventricle, but generally with predominance of such as indicate hypertrophy of the right.

Species II. *Dilatation of the ventricles of the heart*, synonymous with passive aneurism of Corvisart.

Anatomical characters. — Expansion of the cavities of the ventricles, with tenuity of their parietes. These appearances are generally accompanied by a softening of the texture of the muscular substance, and a change of its colour,

* Page 186.

which is sometimes more violet, occasionally more pale and yellow than natural.

Symptoms of dilatation of the left ventricle.

The pulse is soft and feeble, and there are obscure and weak palpitations: the hand applied over the ribs feels them gently raised, as though it were by a soft body, or the action of the heart is totally imperceptible to the hand thus applied.

Stethoscopic signs, which are much the most certain:—the clear and loud sound of the contractions of the heart heard between the cartilages of the fifth and seventh sternal ribs. The degree of clearness and the extent of this sound are the measure of the dilatation: thus, when the sound of the contraction of the ventricle is as clear as that of the contraction of the auricle, if at the same time the heart be easily heard in the right side of the back, the dilatation is extreme. In cases where the dilatation is more moderate, it will yet be heard on the left side of the back, or on the same side of the thorax from the axilla to the region opposite to the stomach, or on the right side of the thorax to the same extent; or when the dilatation is still in a slighter degree, it will be distinguishable under the clavicles.

In illustration of these signs, and of those presented by the preceding species, I may re-

mark to individuals unacquainted with the use of the cylinder, that the intensity of the *shock* it conveys to the ear is in general in the inverse ratio of the extent of surface occupied by the beatings, and directly as the thickness and force of the parietes of the ventricle; whilst the clearness and extent of the sound are inversely as this thickness and force, and in the direct ratio of the volume and feebleness of the organ.

The symptoms of dilatation of the right ventricle may be stated to be, considerable sense of suffocation; occasional hæmoptyses; deep lividity of the face; soft, feeble, and sometimes irregular pulse; an habitually distended state of the veins of the neck; and great tendency to œdema.

Some of these symptoms have been objected to by authors. The distention of the veins of the neck, suggested by Lancisi, is rejected by Corvisart and adopted by Laennec; whilst the latter writer says, he has occasionally found a bloodless rather than a livid state of the countenance. It is probable that each symptom, considered by itself, is equivocal; but, from the assemblage which cases present, an experienced observer may, to my knowledge, frequently draw a correct conclusion.

The following very simple *stethoscopic sign* is certainly the most positive of all—the loud sound of the heart examined at the lower part of the sternum. The degree of dilatation is measured

by the extent of space of the thorax in which the sound is heard.

Species III. *Dilatation with hypertrophy of the ventricles of the heart*, synonymous with the active aneurism of Corvisart, and the *eccentric* hypertrophy of Bertin.

This is, so far as my observation extends, by far the most frequent form of disease of the heart; and I have little doubt that many cases of it occur yearly to the notice of every practitioner in the kingdom.

Its *anatomical character* will be understood from its designation. When both ventricles are affected, the heart acquires an enormous size, due at once to the thickness of the parietes of the ventricles and to the enlargement of their cavities. M. Laennec informs us, that it is sometimes three times as large as the clenched fist of the subject, in other words, triple its natural size. I sent a preparation of a heart affected with this disease to the museum at Chatham in 1818; it equalled in bulk the heart of an ordinary ox.

Symptoms.—These denote both the force and the extent of the heart's action. The hand applied to the chest feels that organ beating most violently; every systole of the ventricles shakes the whole frame. A frequent, strong, hard, vibrating, and incompressible pulse corresponds to this violent action of the central organ.

The stethoscopic signs are composed of those of hypertrophy and dilatation. The contraction of the ventricles gives at once a strong impulse and a clear sound, perceptible and audible over a great extent of the thorax.

It is presumed, in the description just given, that the left ventricle participates in the affection. When the right ventricle only is affected, of which Bertin furnishes two examples *, the symptoms are very different from those delivered above, and so obscure, that I apprehend the cylinder alone can lead to a precise diagnosis of the disease.

To detail all the complications of these disorders, as the co-existence of dilatation of one cavity with simple hypertrophy of another, &c. and their symptoms, exceeds the scope of this synopsis.

Dilatation and hypertrophy of the auricles being rare diseases, and being always associated with other lesions of the organ, in the signs of which their indications will be submerged so that they cannot be distinctly recognized during life, we shall not add needlessly to the length of this part of the Essay by any disquisition regarding them.

The subjects of carditis or inflammation of the muscular substance of the heart, of unnatural

* Op. cit. pp. 324. et seq.

hardness, and the opposite state, undue softness of the organ, have given rise to some controversy between M. M. Bertin, Bouillaud, and Laennec. I shall here briefly state the symptoms of the two latter affections, reserving for a subsequent division certain observations on the question, regarding which these distinguished pathologists have joined issue, which is one of great practical importance, and closely connected with my principal object in the composition of this Essay.

Of the affections of which the symptoms are about to be stated I do not know that I have ever seen an uncomplicated example. In combination with other morbid conditions of the organ, they are of frequent occurrence, and cases of both will be given. Of carditis, which M. Laennec would admit to be such, being attended with the formation of pus, I have seen one example, of which an outline will be presented.

Species IV. *Induration of the muscular substance of the heart.*

This may vary in degree from the state of moderately-increased density, which has already been mentioned under the head of hypertrophy, to the hardness described by Corvisart, in which the organ, being struck by the scalpel, sounded like a dice-box.

The symptoms of the slighter degree of this affection, we are told, will be the same as those of

hypertrophy. Regarding those attending its more intense degree, the opinion given seems a merely speculative one, that "it ought to strengthen considerably the sound of the contractions of the organ." *

Species V. *Unnatural softness of the muscular substance of the heart.*

This may be either acute or chronic. The symptoms of the acute form will be very much the same as those of acute pericarditis; in combination with which affection most of the cases which have fallen under my observation have occurred.

Those of its chronic state are extreme languor and debility, displayed particularly on any attempt at exertion; but especially on an effort to accelerate the pace, or ascend a height, either of which induces excessive distress. The complexion is pale and sallow; the lips and gums are bloodless; the pulsations of the heart and arteries are frequent, feeble, and soft. Through the stethoscope the sound of the organ is obtuse and obscure, and its impulse feeble. The disposition to serous effusion is great. This condition of the organ frequently complicates and modifies other forms of cardiac disease. I have found it in combination both with hypertrophy and dilatation of the heart.

* Bertin, op. cit. p. 406.

The following is the case of abscess already referred to, which M. Laennec would consider an unequivocal example of carditis:

A young gentleman had for two or three years imagined himself to labour under disease of the heart, or some of the large arteries; but as he was of a singularly sensitive cast of character, and as he had no indications of such disease, but occasional palpitations, which were attributed to mere nervousness, little attention was paid to his representations, either by his friends or the medical men whom he consulted. In June 1824, he had an attack of acute hepatitis, treated and removed by the usual remedies. In the autumn of that year he placed himself under my care. His symptoms indicated nothing but incessant fever and erethism, which were breaking down his flesh and strength, and which, I was convinced, were connected with a local cause; but the precise seat and nature of this cause I own I failed to ascertain, as I was not then skilled in the use of the stethoscope. In a little time he proceeded to London, and there two of the most eminent physicians were consulted; but they were not more fortunate than myself in their scrutiny into the cause of the ceaseless fever. They seem to have seen in it mere debility consequent on hepatitis and its treatment. The one prescribed sulphate of quinine: the other Griffiths's mixture. Then

a surgeon, celebrated for his skill in the treatment of disorders of the digestive function, was applied to. He, of course, experienced no difficulty, but "pronounced" (I copy from the letter of the very intelligent brother of the patient, which now lies before me) "his *one opinion*, namely, that the seat of the disease was the stomach and bowels, and that the blue pill and black draught were the only restoratives, and these my poor brother actually took for a fortnight." This very accomplished and amiable young man died on the 21st of February 1825. The semilunar valves of the aorta were found ossified, and the lining of that artery was studded with calcareous matter. In the muscular substance of the heart, near its apex, was a considerable portion of pus, in cells of the size of a large pea.

Having given a succinct account of all the morbid states of the muscular substance of the heart which have fallen under my own notice, and seem to be of practical importance, I beg to refer to other sources for an account of those *accidental* productions, over which we are destitute of control, and the recognition of which, during life, is generally impossible. Fatty *degeneration* of the heart is mentioned by Laennec. Corvisart, Haller, Filling, Renaulden, and the late Mr. Allan Burns of Glasgow, have seen its substance ossified; a cartilaginous formation

is noticed by Laennec and Kreysig; it has been found cancerous by Recamier, Rullier, Cruveilhier; and three examples of this distressing change of structure have been published in the Revue Médicale, by M.M. Andral and Bayle. It is occasionally tuberculated. Many authors, among others that distinguished surgeon Dupuytren, have found it affected with serous cysts, and Morgagni discovered in it traces of an hydatid (quasi ruptæ hydatidis vestigium).*

It is not my intention to enter into the consideration of congenital malformations of the heart, nor of the permanence of its fœtal structure in extra-uterine life.

SECTION III.

Diseases of the lining Membrane and of the Valves of the Heart.

It may be remarked, that the right cavities of the heart are lined by a membrane resembling in character the inner coat of the veins; and that the left chambers possess a lining bearing the same relation to that of the arteries. The tricuspid valve on the one side, the mitral on the other, are formed respectively by the reflection of these membranes over a tendinous or fibrous tissue.

* Epist. iii. art. 26.

Species I. *Inflammation of the lining membrane of the heart.*

Anatomical characters. — In the present state of our knowledge we are not perhaps *fully* warranted in assuming mere redness of the lining of the heart, or of that of the vessels with which it is continuous, as evidence of inflammation. The experiment of M. Laennec, in which he produced the one form of it, bright scarlet, by confining blood within a portion of the aorta, and placing this within the stomach of a subject for twenty-four hours *; the remark of Mr. Hodgson †, that he has found spots of a deep red on the points corresponding to a clot of blood; and its being a uniform tint free from all appearance of injected capillaries, lead to the conclusion, that it is a mere dying from blood that has remained in contact with or flowed over the part. This opinion receives confirmation from the fact of its disappearance by a few hours' maceration in water, and from the absence of all thickened appearance of the reddened part; though the latter fact is of doubtful character, unless it be proved that inflammation necessarily thickens the membrane in question. The high names of Frank ‡, Kreysig, Bertin, and

* Op. cit. t. ii. p. 604.

† On Diseases of the Veins and Arteries, p. 8.

‡ De curandis Hominum Morbis, t. ii. p. 173.

Bouillaud*, are ranged on the opposite side. They deem it evidence of inflammation. I will venture to remark, that I have seen this redness very intense when there was unequivocal evidence of inflammation of the pericardium, and some indications that the muscular substance of the heart was similarly affected. It is true, that there was a great quantity of coagula accumulated in both chambers of the organ; but these coagula were of the polypiform kind, consisting of mere lymph at the surface, which was in contact with the membrane.

Another tint which this lining assumes, a deep violet, brown, or even almost black, may certainly arise from the stasis of blood from interrupted circulation, or even from "cadaverous lividity." These views, which exclude the idea of inflammation, receive confirmation from the facts, that the colour is more intense where obstruction to the circulation has existed, or where the dying agony has been of long duration. It has been observed too, that the colour is deeper on the right or venous side of the heart.

An indubitable sign of inflammation of this membrane is the effusion of coagulated lymph. This effusion has been observed on both sides of the heart, and in various parts of the vascular

* Op. cit. p. 55.

system, by a host of writers whom it would be superfluous to quote.

The relation which a thickened, indurated, or even calcareous state of the lining membrane or of the valves of which it forms a part, bears to inflammation, will probably be noticed in a subsequent department of the Essay.

It seems questionable whether this inflammation, existing as an independent disease, could be discovered on the living body.

Species II. *Polypous concretions within the cavities of the heart.*

These formations, first termed polypi by Bartoletti and Pissini, have been the subject of warm disputes among physicians ever since Kerkringius produced them, by the mild and interesting experiment of injecting sulphuric acid into the veins of living dogs. Referring the curious reader for a spirited account of this controversy to the vivid pages of our own ingenious John Bell, I shall endeavour to present a succinct account of the matter cleared from the learned rubbish with which it has been encumbered.

Polypi may be subdivided into two species: the one, consisting of the whole constituents of the blood coagulated, or, if there be distinct fibrinous matter, that existing only at the surface, lie nearly loose in the cavities of the heart, and perhaps extend a certain distance into the

continuous vessels; — these cannot be considered as the cause of disease. The other concretions, which are of more ancient date, adhere strongly to the parietes of the heart; are so interlaced with the retiform structure of the ventricle, as to be separable with difficulty; and have a distinctly fibrinous appearance, or resemble boiled and discoloured flesh. Occasionally we find these really organized, of which the following case is an example:

"A girl, aged eighteen, died in the Hôtel-Dieu, the 13th of December, 1822. The right auricle of the heart was filled in great part by a soft gelatinous clot, containing in its centre vesicles filled with a half-concrete liquid, in which ramified vessels injected with bright red, and dark-coloured blood. This polypiform concretion ascended into the vena cava superior, the subclavian and jugular veins, and was confounded with their much dilated parietes. The superior extremities and face alone were œdematous." *

These polypi, organized and of some standing, may disturb the circulation, and of this the following case is an example: — "A man entered the hospital of La Charité, in the month of March 1817, and died there, with symptoms which authors have hitherto attributed to aneu-

* Obs. communiq. par M. Senn apud Bouillaud, p. 448.

rism of the heart. The right cavities of the heart, besides recent coagula, contained cakes of fibrino-albuminous matter, organized and adhering to the parietes by filaments which were obliged to be broken to separate it. It was prolonged into the superior cava, and likewise into the inferior, and almost obstructed the orifice of the pulmonary artery." *

There is every reason to conclude, that these organized polypi are connected with an inflammatory condition of the internal membrane of the heart.

Symptoms. — "The sudden occurrence of anomalous, confused, and obscure beatings of the heart in an individual in whom they had previously been regular, would lead to the suspicion of the formation of a polypiform concretion: if this disturbance exist on one side only, the thing is almost certain." † I may remark, in confirmation of the hypothesis hazarded (Essay on Inflammation, p. 145.) respecting the cause of the fibrinous coat of the blood, that I have seen the first form of polypi with abundant distinct lymph on their surface, in deaths from inflammation, in which the heart was not at all affected; and it has appeared to me that lymph abounded visibly in such concretions only in cases of inflammatory disease.

* Thibert apud Bouillaud.

† Laennec, op. cit. 1st ed. t. ii. p. 333.

Species III. *Induration, ossification, and warty excrescences of the valves of the heart.* Were this synopsis framed according to the niceties of pathological condition, and did it not regard exclusively utility, and an application to the practical part of the Essay, a subdivision would be requisite here. But as the different states comprised in this species act both on the heart and general system in the same mode, by obstructing the circulation and imparting irregularity to it, and as from this obstruction or irregularity their symptoms spring, it has been thought expedient to comprehend them under one head.

Anatomical characters.—When the whole valve is simply indurated, it is much deformed, and presents, as it were, an elliptical ring, with borders more or less thickened, resembling in some degree the lips of the glottis, and of which the aperture does not exceed, in its greatest diameter, three or four lines. Unless there be ossifications or warty excrescences, the surface of the induration is smooth. Its tissue possesses the firmness of tendon, of fibro-cartilage, and occasionally even of cartilage. In a more advanced stage, this induration is converted into calcareous deposit, more or less extensive. These changes are sometimes only partial, existing, for instance, at the base or fibrous zone, the rest of the valve being healthy; or inversely the points of the

valve may be affected, the base retaining its natural character. Occasionally these points are so united as almost to obliterate the auriculo-ventricular aperture or orifice of the aorta. The calcareous matter may be either covered by the internal membrane, or bathed in the blood of the cavity.

These changes are much more frequent on the left than the right side of the heart: in the mitral valve and that of the aorta, than in the tricuspid and that of the pulmonary artery. They sometimes exist in these last; and a case will subsequently be given, in which the tricuspid valve was in a thickened and indurated state; but these affections of the valves of the right side are rarely attended with calcareous deposit, and are much less frequent than on the opposite one. An explanation of this difference is probably to be found in the greater share of labour sustained by the left side of the heart, which has to propel the blood through the system; hence any general irritant of the organ will be more felt, and more apt to produce disorganization, on this side, than on the opposite one, which has the labour of the smaller circulation only. It has been remarked, that if ossification of the valves of the right side of the heart exist, there is generally a preternatural communication between the two cavities of the organ through the foramen ovale. This is a strong confirmation of the accuracy of the

explanation offered; for the effect of such malformation will be to give to the right side of the heart a share of the labour of the left. It is extraordinary that M. Bertin, who points out the fact, instead of the very natural inference here suggested, draws a very fanciful one from it; viz. that the stimulating effect of the arterial blood which passes through the left cavity gives rise to this difference, and that the admission of this blood through the preternatural communication identifies the diseases of the two cavities.

The warty excrescences vary in firmness and size. They are sometimes soft, easily crushed between the fingers, and resemble much the granulations which are observed on serous membranes affected with chronic inflammation. Occasionally they are much firmer, and scarcely separable from the valve; and then they have generally a diameter of three or four lines, and a cylindroid or pyramidal form. These excrescences, each variety being comprehended, range in size from that of a millet seed to the bulk of a large pea. They exist either insulated or congregated together so as to have a cauliflower-like appearance. They occupy more frequently the free than the adherent border of the valves; but are found on every part of them, and likewise on the lining membrane of the auricle. They are oftener met with on the aortic valves than elsewhere. As will readily be conceived, they produce by con-

tracting the valvular orifices the same symptoms as thickening or ossification of the valves.

Symptoms of induration, ossification, and warty excrescences of the valves. — These we shall subdivide into general and stethoscopic signs.

The general symptoms are certainly not unequivocal, being common to all diseases which present a considerable obstacle to the circulation, or even to the respiration. Yet from their duration, number, and intensity, the *probable* existence of lesion of the valves may often be deduced.

When the valves of the left side of the heart are affected (especially the aortic valve), the small, hard, unequal, irregular, intermittent pulse is singularly contrasted by its smallness, and occasionally by its almost imperceptibility, with the extent and energy of the heart's action. I have observed this disproportion exceedingly conspicuous in ossification of the semilunar valves of the aorta. When the obstacle exists on the right side of the heart, there is less irregularity in the pulse, and less disproportion between the force of the heart's action and that of the arteries. In all cases of extensive valvular disease, the indications of venous congestion are very conspicuous: the complexion has a violet or livid tinge; the lividity and protrusion of the lips are very conspicuous; the hands, even in tolerably warm weather, are cold and blue; and

the liver swells from being gorged with blood. From the stasis of blood in the veins, the capillaries of the mucous membranes are injected. From the gorged state of the vessels of the liver and stomach, there are uneasiness and distention of the right hypochondriac and epigastric regions, and the alvine functions being generally ill performed with dark fecal evacuations, the practitioner's attention is withdrawn from the real point of disease; or, if the indications of disturbance of the heart's action be too manifest to escape the most careless observation, it is supposed to be sympathetic of the hepatic derangement. Such errors are still too frequent, though less so than formerly. The congestion in the veins and sinuses of the brain causes intellectual torpor and hebetude. Petechiæ and passive hemorrhages are not unfrequent, and I have often seen the parts of the surface, under which ecchymosis had taken place, assume a gangrenous appearance. I recollect the extremity of the nose becoming mortified in an individual affected with this form of disease. From the diminished action of the veins dropsical effusions are general and abundant. When valvular obstruction exists to a considerable extent on the left side of the heart, hæmoptyses and other signs of pulmonary engorgement are very conspicuous. Wherever the valvular disease may be seated, the dyspnœa is singularly distressing,

especially on bodily exertion: in the advanced stages of the disease it amounts to actual orthopnœa, and in some cases the respiration is tolerable only when the body is curved forward. Pain is not a uniform, but an occasional symptom. It is sometimes severely felt in the pit of the stomach; and one patient complained to me of acute, lancinating pains in the heart itself.

Stethoscopic and tactual signs. — These will require a little prefatory explanation.

M. Laennec has applied to the diagnosis of these diseases an ear, and we may add, too, a touch, singularly acute and delicate; but as he has with great ingenuity illustrated what language otherwise could not have conveyed an accurate idea of by sounds and feelings analogous to those which he experienced, and yet familiar to every one, a considerable share of his discriminative power is attainable by all, whose privation of the faculties in which he manifestly excelled does not amount to organic defect.

The following abbreviation of his description of what he perceived by the ear and touch, will render the justice of this remark evident.

Bruit de soufflet. — This sound, precisely resembling that produced by the blowing of a pair of common bellows, is heard through the cylinder in certain morbid conditions of the organ, superseding the natural sound of the diastole of the

ventricle, auricle, or artery in which it takes place. It ceases during the systole of the heart. But in certain rare cases its character changes, in the carotid especially, and even in the heart itself, to a continuous murmur like that of the sea, or of a shell applied to the ear; then the shock of the diastole is scarcely or not at all distinguishable.

Bruit de scie ou de râpe.—The sound thus designated is strictly similar to that which a saw produces at a greater or less distance. It resembles, too, very much that which a rasp or file produces on wood; and conveys with it the rough sensation which accompanies the noise of these instruments.

Frémissement cataire. — This is a sensation aptly compared to that communicated to the hand by the purring of a cat which one caresses; or to that produced by passing a roughish brush over the palm of the hand covered by a glove. It is more perceptible when the patient speaks. It is generally confined to the left precordial region, to which the hand should be applied with moderate force to perceive it. Sometimes it is perceptible at the anterior part of the breast, and even at the upper part of the sternum. It is observed in almost all cases in which there is contraction of the orifices of the heart; yet is occasionally met with when there is no organic lesion of that viscus.

The application of these phenomena, and the degree of reliance that they merit as distinguishing signs of contraction of the apertures of the heart, will be understood from the following translation of a passage of M. Laennec's work, for the accuracy of which an experience not very limited enables me to bear testimony:

"*Frémissement cataire* is really found when the ossification of the mitral valve or semilunar valves of the aorta exists in a great degree: but, as we have already said, it may take place although the valves be altogether healthy, and it is wanting almost always when the osseous or cartilaginous induration is not carried so far as to obstruct sensibly the passages.

"The *bruit de soufflet* accompanies almost constantly the ossification of the valves; it is inherent in the contraction of the left auricle when the mitral valve is affected, and in that of the ventricle when the induration affects the semilunar valves of the aorta. But this phenomenon too is wanting when the affection is slight, and as it is besides very common in hearts entirely sound, we can conclude nothing from it as a sign of the case in question, but when it is joined to other circumstances likely to confirm the diagnostic; thus, when the *bruit de soufflet, de lime*, or *de râpe* perseveres in a continued or even intermittent manner, during many months, in the left auricle; when it exists there only;

when it is present in moments of calm, and after a long rest; when it is very little diminished by bleeding, or when, should it even then disappear, it leaves still something rough in the sound of the contraction of the auricle; and especially when the *frémissement cataire* is joined with it, we can affirm that there is contraction of the left auriculo-ventricular aperture; a contraction which is more frequently owing to the ossification of the mitral valve than to any other cause. If the same phenomena take place in the same circumstances in the left ventricle, we may in the same manner affirm that there is contraction of the orifice of the aorta. But if these phenomena exist only for a time, even considerably long, two or three months, for instance; if they accompany the exacerbation of another nervous or organic disease of the heart, we should have no more confidence in them, since all the facts hitherto set forth prove that the phenomena in question are not owing to the passage of blood over a rough surface, but to the spasmodic energy which the muscular action acquires to overcome the obstacle opposed by the contraction. But other causes besides a contraction, which can produce a spasmodic action of the heart, can equally produce the *bruit de soufflet* and the *frémissement cataire.*"

SECTION IV.

Diseases of the Blood Vessels and Nerves of the Heart.

Respecting these I do not purpose entering into any considerable detail.

The coronary arteries are occasionally found ossified, and still more frequently dilated; the coronary vein, too, is often in the latter state; and this condition of these vessels frequently, as might be supposed, accompanies hypertrophy.

That neuralgic pains occur in the heart admits little doubt; but I do not feel prepared to pronounce a positive opinion as to whether that curious assemblage of symptoms termed angina pectoris is to be considered a form of this neuralgic affection, as it is most commonly thought in France; or is to be referred to some structural disease of the heart, which is the prevailing sentiment among the physicians of this country, Germany, and Italy. The opinion of Dr. Parry, of its almost *exclusive* dependence on a cartilaginous or ossified state of the coronary arteries, must, I believe, be abandoned, unequivocal cases having existed, and proved fatal, in which neither of these changes was discovered. Its whole course certainly suggests the idea of a nervous or spasmodic disease; and it may be that sometimes ossification of the arteries, or occasionally other structural change in

the organ, is the exciting cause of that nervous or spasmodic affection, which may yet in other cases be independent of any such change. It seems probable, too, that in many cases the irritation which produces this affection of the heart is seated in other parts of the frame; and facts in illustration of this will be given in the next Essay.

Though certainly conceiving that ossification of the coronary arteries is by no means uniformly the exciting cause of angina pectoris, yet I will venture to remark, that in most cases of sudden and unexpected death from diseases of the heart, I have found those arteries changed in structure. The following case is an example:

Mrs. ———, æt. 66, complained of general uneasiness in the region of the heart, dyspnœa, and occasional palpitation. These symptoms had been aggravated by mental affliction. The pulse was frequent and forcible; the heart's impulse under the left mamma very strong; and the sound of its action audible under both clavicles. Her breathing was somewhat difficult and sonorous; yet there was nothing in her symptoms which led to an apprehension of speedy dissolution. After I had, however, attended her only eight days, she expired suddenly, when in the act of taking a cup of tea, though she had been not a minute before in tolerably cheerful conversation with her family,

and had also, on my visiting her the preceding day, expressed herself as feeling much better.

Mr. Davey, of the 7th Fusileers, and Mr. G. Green, kindly assisted me in the dissection. The left ventricle and septum were hypertrophied, the parietes of the latter being an inch thick at the base, and its cavity was rather dilated. There was some dilatation of the right cavities without hypertrophy; the valves of this side were healthy, but the mitral valve was rather thickened and tendinous. The left coronary artery was ossified throughout its whole extent; the right, too, was ossified in patches, but not so generally and extensively as its fellow. No other morbid appearance of moment was discovered.

The symptoms in this case were by no means urgent; and the degree of hypertrophy and dilatation not so great as to interfere dangerously with the functions of the organ: we are thus referred to the ossification of the arteries for an explanation of the sudden fatality; but I feel considerable difficulty in connecting this state with its supposed effect, unless the intimation given respecting spasm of the organ being the uniting link, be deemed probable.

The following was, I think, a case of neuralgia of the heart: —

A gentleman advanced in life requested my attendance on the 5th of December 1826. The

account I received of his symptoms was as follows: He had for some time found any exertion beyond a slow walk on level ground distressing to him, by inducing a sense of uneasiness under the sternum, which he felt great difficulty in explaining; the most correct idea he could convey of it was by comparing it to the numb feeling of the leg or arm induced by pressure on their nerves. The sensation was such as to compel him to rest midway in a very gentle ascent of two or three hundred yards, which his business obliged him to ascend daily. This state of things had existed many months; but the feeling on account of which I was summoned, was of but a few days' duration: this was an agonizing pain felt within the whole of the precordial region, from the lower part of the sternum to beneath the left mamma, and which diffused itself thence over great part of the thorax, and down the *left* arm to the very points of the fingers. It was also felt severely in the shoulder, and still more so in the ulnar nerve at the elbow. This pain occurred daily at six P. M., and continued till the morning without any abatement; it then spontaneously subsided, to be renewed in its former intensity after an interval of about nine hours; but exertion of any kind, such as ascending the staircase, would bring on the paroxysm even in the forenoon. During the intensity of pain, the action of the

heart was feeble; and the countenance was pale, and expressive of great anguish. The stethoscope did not indicate any thing, either during the pain, or when it was absent, but a degree of dulness in the sound of the ventricle.

He had been bled the day before I visited him, by his surgeon. A few additional ounces of blood were drawn from the arm, which exhibited no buffy coat, and six grains of compound calomel pill, and a draught with thirty drops of tincture of opium, were given.

Dec. 6th. — The pain did not subside before the usual time, being apparently uninfluenced by the measures adopted. Pills of calomel and colocynth were administered, followed by some castor oil; and in the event of the pain recurring, he was directed to take a draught containing twenty drops of the black drop, every two hours, till it should be subdued, and to continue the compound calomel pill.

Dec. 7th. — The second draught gave entire relief; the pain, instead of remaining fifteen hours, having been subdued in two.

The compound calomel pill, the opiate, and an occasional laxative, were continued for a few days, and the neuralgic affection entirely ceased; but those obscure feelings which he had previously experienced on exertion, especially on ascending a hill, still remain.

General remarks on this synopsis, and on the origin and nature of the diseases comprised in it.

It will have been observed, that some of the species described in this synopsis are not simple. Hypertrophy with dilatation, this last with tenuity and softness of the parietes of the organ, are examples of complication, but of complication of such frequent occurrence, that the existence of the unmixed diseased state may be considered as forming almost an exception to a general rule. But an arrangement comprehending all the combinations which are met with in actual practice would be endless. Rarely do we meet with a perfectly simple disease of this viscus. The three important parts which have furnished the basis of the arrangement I have formed and presented to the reader, are in many cases found all affected: effusion of lymph on the pericardium, hypertrophy with dilatation, thickened and ossified valves, are often co-existent. The two latter affections are so frequently found in conjunction, that the opinion has been entertained that they were always to each other in the relation of cause and effect; that contraction of the aperture from induration of the valve, by accumulating the blood in the cavity behind it, and thus exciting the parietes of the heart to inordinate action to overcome the resistance to the current, produced active aneurism. Thus the increased thickness and density of the pa-

rietes of the organ might be compared to the similar affections of the coats of the bladder which occur in obstruction of the urethra. There is great reason to think that such a relation does occasionally exist between these two morbid changes; but they and many others are, I am convinced, generally mere co-existences, originating from one common cause.

A mere "catalogue raisonnée" of all the complications would weary the patience of the reader. In studying clinically this order of diseases, he will find that discrepancy between nosological precision and actual existences which he has been accustomed to encounter in other departments of our art; but practice and reasoning will teach him in time to analyse the complications submitted to his notice.

Another and more important consideration is suggested by the synopsis. The majority of the diseases mentioned in it are but the brute product of a living process which is allowed to pass unnoticed. We speak not of a disease of the heart till it has become something beyond our control, or over which our influence is confined to the palliation of uneasiness and to the removal of effects. In both these modes we are useful, and more so in many cases than most individuals not of the profession would suppose possible, considering the generally fixed nature of the disease when our attention is first solicited to it.

The plan adopted in these diseases, I am afraid occasionally by the physician, but much more frequently by the patient, may be illustrated by supposing pleurisy to be habitually neglected till chronic effusion irremovable but by operation existed, or the morbid process in pneumonia to be overlooked till it had engendered insurmountable hepatization. There has been no reference to the vital process which precedes the ultimate and irremediable change. All treatises, all classifications (so far as I am acquainted with them, with a solitary exception), have regarded these evident structural changes only. In this respect the work of M. Laennec, excellent as it is in others, is singularly faulty; it displays a positive dislike to views which admit a useful and practical application. Those which I am about to develope were first suggested to my mind by the manifest agency of rheumatism, of course an inflammatory disease, in the production of almost every form of change which these parts undergo.

M. M. Bouillard and Bertin are the only writers in whose pages I have found any extensive confirmation of my opinion that these states are the products of inflammation, and this confirmation applies but to a portion of them. Of the instrumentality of rheumatism in their production, they are totally silent; and the oversight, as it may be termed, is the more extra-

ordinary, as cases will be found in their work which should have awakened them to this connexion, in a practical point of view so important. My attention, it has been stated, was first drawn to the real nature of the vital process which precedes the final structural disease by the inflammatory nature of one cause; that, certainly, which my experience warrants my declaring the most generally active. Let us now pass in review the more important of these diseases, and see whether their own nature does not demonstrate that inflammation is the agent which engenders them.

Of the affections of the pericardium, its acute and chronic forms of inflammation, and those white flakes of lymph which are occasionally found upon it, and which, like other albuminous effusions, are but the effects of the same process, fall so naturally into our category, that they require no commentary. Dropsy of this sac, when it is, which is very rare, an idiopathatic disease, will as readily be attributed to the same origin. When it is symptomatic, as it almost always is, of obstructed circulation, its causes will be considered under some of the following heads.

Hypertrophy. — The increased thickness and density of the parietes of the heart in this disease must of course arise from increased determination of blood. The augmented capa-

city of the coronary vessels is full evidence of such determination. It would, I think, be very difficult to draw the line between this state and inflammation. If we regard the operation of this process on other structures, we find condensation of tissue an effect of a certain stage or degree of it. The lungs, the liver, the brain, fibrous and serous membranes, all furnish examples of this. Either this condensation, or a pale softened state, equally proved by analogy to be the effect of inflammation, exists in every case of hypertrophy. The white flakes on the pericardium, and the thickened and ossified state of the valves with which it is so constantly co-existent, both, too, lead to the conclusion of its being of inflammatory origin.

The same inference may be deduced from the mode of treatment recommended. Even M. Laennec, the last to admit inflammation to be a cause of any disease, recommends for its cure the plan advised by Valsalva and Albertini, in aneurisms of the arteries, in other words, bleeding and starving; and from this he promises, in many cases, complete success. If this do follow, it certainly would appear that it can do so only on the principle on which other inflammations are subdued by it. By withholding and withdrawing nutriment from the heart, we equally withhold and withdraw it from other parts of the frame, of which the emaciation induced will

be greater than that of the heart itself; for the external organs waste even more rapidly in disease than the internal: hence, did this treatment act by the mere subduction of nutriment, and not as a remedy of inflammation, the heart would preserve to the whole frame, at least as great a comparative bulk as it formerly possessed. It has already been shown, in the Essay on Inflammation, that no inference, as to the non-existence of this diseased action, ought to be drawn from the mere absence of pain; but I may be allowed to remark, that hypertrophy from rheumatism, and probably, too, from other causes, receives occasional rapid increments, and that actual pain occurs at these periods of increase.

The other causes, besides that so frequently adverted to, are all irritants of the organ; as valvular disease, contractions of the aorta from this or other causes, mental emotions, excessive bodily exertion, and the abuse of alcohol.

A more important consideration than all is, that if benefit, beyond the mere removal of some of its sequelæ, such as dropsy, for instance, is to be afforded to this state in any of its complications, it is by the application of the remedies of inflammation; and the earlier they are applied the greater is our prospect of success, the analogy with inflammation being in every respect preserved. I may add, too, that blood drawn

in a certain stage of the disease very rarely indeed fails to exhibit the buffy coat.

Hypertrophy, when our attention is first called to it, is too frequently found to have attained a state in which all efforts of *cure* are unavailing: the inflammatory process having accomplished its object, built up and consolidated the organ, has subsided. It is only during the process that our control over the disease is considerable.

Softening of the muscular substance of the heart. — Of this two forms exist, the one in which the muscular substance of the organ is of a dark red or violet colour; the other, in which it is pale or almost white. In both it is soft and friable, and easily broken down by pressure between the fingers. I have already expressed an opinion of the nature of the first form in the Essay on Fever: the analogy of other organs, as the brain, uterus, spleen, kidneys (of the effect of inflammation on which an example will be given in a subsequent Essay), leads us to conclude that the second is frequently the product of inflammation. A strong argument in favour of this conclusion may be deduced from its being found associated with manifest acute inflammation of other parts of the organ, as of the pericardium; and from the inflammatory nature of rheumatism, the cause which apparently engendered both.

The almost cartilaginous hardening of the muscular substance of the organ, being only a more advanced stage or degree of that which ordinarily exists in hypertrophy, and being co-existent with that disease, we may refer to our observations on that head, as well as to the analogy of other tissues, for evidence of its being the product of inflammation.

Induration of the valves of the heart. — The thickened and indurated state of these parts alone, from the analogy of the effects of this process on other organs, would lead to the conclusion that inflammation had been operating; almost all the tissues which compose our frame being indurated and thickened by certain degrees and stages of this affection. We draw the same inferences from the causes which operate in the production of this disease; from the other affections of the same parts, such as the effusion of organizable lymph, with which it is occasionally accompanied; and from finding it associated with recognized inflammatory affections of other portions of the organ or the continuous blood-vessels. What is not very properly termed ossification of these valves is illustrated by similar facts and coincidences. The late Mr. Allan Burns of Glasgow found the left auricle partly ossified, and lined interiorly with a layer of plastic lymph. The same distinguished surgeon and anatomist found, a little below

the mitral valve, a tendinous partition (preternatural, formed of course from organized lymph,) ossified in some points.* Rarely do we examine a case of hypertrophy, in which some degree of ossification is not associated with a thickened state of the valves; and, as has already been remarked, it is found co-existent with the pseudo-membranous effusion on the pericardium, which is evidence of inflammation of that membrane. We find it only in conjunction with an indurated condition of the valves which it affects, and of this hardness it may be considered the extreme state.

Analogues of this calcareous deposit will be found in the tophaceous concretions so common around joints long affected with gouty, and occasionally existing in those which are the seat of rheumatic, inflammation.

Of the *warty excrescences* it has already been remarked, that one species bears a strict resemblance to those albuminous vegetations which are developed on serous membranes affected with chronic inflammation. The other species is analogous to those warts which are produced in inflammation and ulceration of external mucous surfaces covered by a thin epidermis. They are found in conjunction with that bright red state of the lining membrane of

* On Diseases of the Heart, chap. 9.

the heart, which has been pointed out as evidence, though certainly not unequivocal, of inflammation of that membrane. * Additional evidence is furnished by the fact of their being much more frequently found on the mitral and aortic valves, which are the most prone to inflammation, than on those of the right cavities of the organ.

Of the forms of disease of the heart which have been observed to be connected with rheumatism.

These fall very naturally into two divisions. The first is a very violent and acute disease. The pericardium is the part prominently affected; and if not immediately after the occurrence of the internal affection, certainly very shortly after, there is a total cessation of the disease in the joints. I have never yet observed this disease, excepting when free depletory measures, the hot-bath, or both, had been employed for the primary one.

The second, though of various duration, from a fortnight to some years, I have hitherto found a less acute and violent disease than the preceding. The muscular substance is the portion of the organ prominently affected; and hypertrophy, with dilatation, is the form of this affection which has most frequently fallen under my notice.

* Laennec, 1st ed. t. ii. pp. 342—345.

This disease occurs in cases in which the primary one has been treated by bleeding, but likewise very frequently where that remedy has never been employed; and the primary affection is persistent in the joints for some time after its occurrence: indeed, this affection remains during the whole of its existence, unless the affection of the heart degenerate into a completely chronic form.

I do not wish to involve myself and my readers in the niceties of verbal criticism; but it being desirable that words, particularly scientific ones, should be used in a precise sense, I shall venture to remark, that the term metastasis seems applicable only to the first form of the disease. This word has been defined to mean an excess of the sympathetic over the original irritation.* Its ordinary acceptation differs from this. It is, if I mistake not, usually employed to designate a cessation of the disease in the part originally affected, and its occurrence elsewhere, generally in an internal organ, and one more important than that originally affected. This is the sense which its derivation (from μεθίστημι) warrants, and what is of more importance, — for the ordinary acceptation of words sometimes differs from the strict meaning of their etymons, — that in which it is employed by well-informed members of the profession. Now, in the second form, the

* Broussais, Propositions de Médecine, Prop. xcii.

affection of the joints and that of the internal organ are co-existent for days, weeks, or even months, and it would be difficult to say which preponderates over the other. Though I may remark, that if the second form of the affection receive a sudden increment in its course, as it occasionally does, there is generally a perceptible diminution of the affection of the joints.

First form of the disease. — The symptoms of this form are identically the same as those attributed to acute pericarditis.* The remedies of inflammation, the most powerful in kind and degree, alone present a chance of saving the patient; and the earlier they are applied, the greater is the prospect of this fortunate, but I am sorry to acknowledge, rather rare result. The following example of the successful application of the most powerful of these I owe to Mr. George Green.

"Several years ago I attended a stout country girl, aged eighteen years, who had a very smart attack of acute rheumatism. It is almost unnecessary to observe, that the usual phenomena of the disease were exhibited in this case. The large joints were implicated, and there was a great degree of fever. The girl was once bled pretty freely at the commencement of the attack; had calomel and opium, with antimonials, pur-

* Pages 184—187.

gatives, and such other remedies as are usually prescribed in these affections. The complaint, however, not yielding to these measures, after ten or twelve days a warm bath was had recourse to. She was taken out, after ten or fifteen minutes, dried and put to bed, when I received a most urgent message to visit her without loss of time. Accordingly I saw her within ten minutes of her leaving the bath. I found that metastasis had taken place to the heart. The pain and inflammation had almost entirely disappeared from the extremities. She complained of very great pain over the region of the heart, and told me again and again she could not get her breath. In fact, she was breathing with the greatest difficulty; and this dyspnœa was attended with frequent sighing and fainting. The pulse was frequent, and exceedingly irregular. The poor girl was so ill that I was convinced without speedy relief she must soon die. I therefore made immediately a large orifice in a vein of the arm, and abstracted not less than thirty ounces of blood. She expressed herself immediately relieved. The pain about the heart ceased; the breathing became more easy and natural; the pulse less frequent and more regular; and digitalis being given, in a few days the girl was quite well, with the exception of debility.

"It is remarkable, that though by the bleeding she was quite relieved from the affection of the heart, caused, doubtless, by the retrocession of

the inflammation from the extremities to that organ, owing to the warm bath, yet the pain and inflammation, which, as I before observed, had nearly, if not entirely, disappeared, either when she was in, or immediately after quitting the bath, never again returned to their former situation.

" In conclusion, I may observe, that so sensibly was I impressed with the dangerous effects of the warm bath in this instance, that I have never since recommended it in acute rheumatism, and so fully was I persuaded of the excellent effects of blood-letting in cases of metastasis of that complaint to such vital and important organs as the heart, that I very much fear this poor girl would very soon have been in her grave had she not been largely bled at the time she was."

The following case, which I attended during part of its progress, and in which the dissection fell to my lot, in consequence of the surgeon having a wound in his hand, which rendered his doing it imprudent, is taken principally from the notes of that gentleman.

" I was requested to visit ——————, aged 18, on Thursday, 7th of December 1826, who complained of a very severe pain in her head, accompanied with pyrexia; pulse was quick, full, and strong; tongue white and foul; skin hot and dry; thirst great; bowels constipated. She

told me she had caught cold on the preceding Sunday by walking in the streets with thin shoes. She had previously been a healthy girl.

V. S. B. ad ℥xij.

℞. Hydrargyri Submuriatis gr. v.
Pulveris Antimonialis gr. iv.
Confectionis Rosæ q. s. s. ut fiat bolus statim sumendus.

℞. Magnesiæ Sulphatis ℥iss.
Magnesiæ Carbonatis ʒj.
Aquæ Menthæ ℥vj. Misce. Sumat ℥iss. omni tertiâ horâ.

She was easier after the bleeding, and walked some distance to her father's house, being thus again exposed to cold.

8th. When I visited her this morning, I found she had had a very restless night, with delirium at intervals. It is evident that she has got a severe attack of acute rheumatism. She has great pain in her knees, ankles, elbows, and wrists. The same general febrile symptoms that existed yesterday.

The bleeding was repeated to sixteen ounces.

℞. Liquoris Ammoniæ Acetatis ℥iss.
Liquoris Antimonii Tartarizati ʒj.
Spiritûs Ætheris Nitrici ʒiij.
Vini Seminum Colchici ʒij.
Aquæ puræ ℥iv. Misce. Sumat. ℥j. omni tertiâ horâ.

℞ Hydrargyri Submuriatis,
Pulveris Antimonialis āā. gr. iv.
Confect. Rosæ q. s. s. ut fiat bolus, vespere sumendus.

9th. Complains this morning of severe pain in

her chest, principally in the region of the heart. The pain and inflammation about the joints have almost entirely disappeared. In fact, it is evident, that metastasis has taken place to either the heart or pericardium. The action of the heart is most violent and inordinate, with a very full, hard, frequent pulse; breathing extremely quick and difficult. A tolerably full inspiration cannot be made without increase of pain: anxiety and restlessness are extreme. Bowels open.

Bleeding to twenty ounces.
Mixture with digitalis and colchicum.
Calomel, opium, and antimonial powder night and morning.
A large blister over the region of the heart.

10th. All the symptoms, pain in the region of the heart, anxiety, restlessness, more urgent than yesterday.

Bleeding to sixteen ounces.
A purgative draught.
The digitalis and colchicum continued.

Evening. No mitigation of symptoms. I considered her life in imminent danger.

Bleeding repeated to sixteen ounces.
Calomel, opium, and antimonial powder night and morning.

It is remarkable, that the poor girl never fainted from these repeated bleedings, and always expressed relief from each.

11th. The violent symptoms not at all relieved.

Bleeding repeated to twelve ounces.
Medicines continued.

Evening. Her mouth affected: no relief to her symptoms.

12th. The action of the heart, and pain in its region, violent. Palpitations most distressing. Dr. Brown saw her to-day, and, she being then exhausted, he recommended ten drops of tincture of opium to be given every two hours till the evening visit. There is not the slightest feeling or appearance of pain or inflammation in the extremities. The reflux of blood into the veins of the neck is very conspicuous.

13th. No better: the action of the heart, pain and palpitations, as violent as ever. The stethoscope indicates excessive force of the impulse of the heart and dulness of its sound. The breathing is very rapid, and the respiratory murmur very sonorous, excepting in the precordial space, where it is inaudible. It was agreed between Dr. Brown and myself to repeat the bleeding.

Bled to twelve ounces.
℞. Antimonii Tartarizati gr. vj.
Aquæ tepidæ ℥vj. Solve. Sumat. ℥j. omni bihorio.
Blister to the region of the heart repeated.
Usual bolus at night.

14th. Not the least mitigation of symptoms. Notwithstanding the repeated bleedings, the pulse was strong and full to the fatal termination. The *tolerance* of the tartar emetic was not established, and it was withdrawn.

It is needless to detail the case longer. She died on the morning of the sixteenth.

Appearances on dissection. — The sac of the pericardium was lined with a thick, dense, albuminous exudation, and a similar one covered the reflection of that membrane over the surface of the heart and great vessels. The surface of the organ presented the resemblance, mentioned by Corvisart, to the mucous membrane of the second stomach of a calf. Its appearance was so altered from the natural one, that the gentleman who attended the case with me, exclaimed, on my opening the sac, "What is that?" There were a few ounces of citron-coloured fluid in the sac. The muscular substance of the heart was exceedingly pale and soft. Polypous concretions, perfectly free from colouring matter at the circumference, filled both cavities of the organ, and were so entangled with the valves and retiform structure, as to be separated with difficulty. The lining membrane of the heart was of a bright red colour.

I witnessed some years ago a case identically

the same as this as to cause, symptoms, and fatality. Though it lasted but a week, the pericardium had contracted a soft adhesion to the heart, which yielded readily on lifting the pericardium, and the surface of the organ presented the resemblance to honeycomb tripe, which has already been mentioned.

Second Order. — It is not easy, nor is it perhaps important, to depict all the shades of intensity with which this less acute and dangerous form of disease commences. Occasionally there is an open attack, which cannot be overlooked, but fortunately can be readily repelled, if promptly attended to. This is marked by violent palpitation, and pain felt in the precordial region, and frequently at the inferior angle of the scapula; the impulse of the heart is very forcible; the pulse hard, full, and generally, except when palpitations occur, very slow. There is great anxiety, and some degree of dyspnœa. If this disease be neglected, or imperfectly subdued, the heart becomes hypertrophied, and occasionally affected with other lesions of structure, in a few weeks.

These points will be illustrated by the following cases:

I was requested to visit Mr. ———, æt. 40, on the 24th of October, 1827. A fortnight ago he

had an attack of acute rheumatism, for which he did not send for medical assistance; but after a week had elapsed, feeling pain in the region of the heart, with palpitations, he sent for his surgeon, and then, and not till then, he was bled, and laxatives, &c. were given. Two days after, the bleeding was repeated. When I visited him on the 24th, I found him still suffering great pain in the precordial region, with occasional distressing palpitations and dyspnœa. The impulse of the heart was very forcible, and the sound of the ventricle prolonged and dull; the pulse was full and hard; the rheumatism still remained in the joints. He was a delicate man, and I did not advise a repetition of the general bleeding. Twelve ounces of blood were taken by cupping from the precordial region, and he was blistered there. Two grains of calomel and five of Dover's powder, were given every four hours, and continued, with occasional laxatives, till the 26th, when there was pretty smart ptyalism. He speedily became convalescent, and has since remained in perfect health.

The following case is given more in detail, as I had an opportunity of watching it nearly in its whole course:

Mr. ——, æt. 19., has laboured under rheumatism since the 8th instant. He was visited by Mr. Dixon, his surgeon, on the 11th, who found him complaining of pain in the joints, and

likewise of considerable pain *in the chest.* He drew some very sizy blood, and blistered the sternum.

I was summoned in the evening of December 15th, 1827, and found him complaining of agonizing pain in the region of the heart, extending from below the left mamma to the sternum; the impulse of the organ is remarkably forcible, and its sound through the stethoscope very dull in both situations; his pulse is 54, very strong and bounding; he has at intervals most distressing palpitations, and the pain in the thorax prevents his breathing. His countenance is pale and anxious; his skin hot and dry; and his wrists swollen and very painful. The bowels have been irritated by some calomel which he has taken.

Bled to the extent of twenty-six ounces; blood very sizy.

Applicetur regioni cordis Emplastrum Lyttæ.
Sumat statim Pulveris Ipecac. comp. gr. viij.

16th. He remains nearly in the same state as yesterday, excepting that the action of the heart is rather less forcible, though still very considerably so, and the pain *there* is less intense. The sound through the stethoscope is still dull; the pain in the wrists and hips is very great; the irritation of the bowels is removed by the Dover's powder; pulse still only 54; blister has risen well. He still complains of occasional palpitations.

℞. Hydrargyri Submuriatis,
Pulveris Antimonialis, āā. gr. xij.
Opii gr. ij.
Confectionis Rosæ q. s. s. ut fiant pilulæ xij. quar. sumat ij. omni bihorio.

Same day, evening. He is much easier in the chest; his joints are still painful; he has a brassy taste in the mouth; his pulse has risen to 64. His bowels have been once moved: evacuation very bilious.

Contr. pilulæ.

17th. Chest much easier; pulse 84, less forcible, and slightly irregular. The impulse of the heart is much less forcible, and its sound more clear, though still rather dull. His joints are very painful. Brassy taste more considerable.

Contr. pilulæ.

On his using a little exertion this evening, violent palpitation and excruciating pain in the region of the heart took place. Both had in some degree subsided on my arriving. By mistake his pills had been omitted for six hours. His bowels have been moderately moved. It was the exertion attending this which produced the violent palpitation and pain.

Admoveantur parti thoracis dolenti hirudines xvj.
Contr. pilulæ.

18th. The palpitation and pain have subsided

considerably, though there still exists a great degree of the latter. He has a very brassy taste in the mouth, but there is no perceptible soreness of the gums. His joints are much easier; pulse 82, and softer.

Cupped under the left mamma to the extent of twelve ounces.
Contr. pilulæ.

19th. He became considerably easier in his chest after cupping, and has remained so since. His joints are much easier; bowels slow.

Contr. pilulæ.

20th. Is in every respect doing well; mouth sore; pills to be taken every four hours only.

21st. He seems to be going on well, yet is there a little increase of uneasiness in the region of the heart.

Admoveantur hirudines xij. parti dolenti.
Sumat statim Olei Ricini ʒj.

From this time he proceeded steadily to convalescence, and has since remained in very good health, with the exception of a slight attack of rheumatic head-ache.

The following deplorable example of the fatal consequences of the omission of decisive treatment in cases of this kind I copy from the work of M. M. Bertin and Bouillard. It is an excel-

lent instance of the rapid formation of hypertrophy with dilatation. It is not stated whether blood-letting was employed for the rheumatic affection of the joints; but from what we know of the opinions and practice of the French ten years ago, we may almost certainly conclude it was not.

"*Hypertrophy of the left ventricle, with enlargement of its cavity.*—Angelot Denis, a tailor, aged twenty-two years, of a sanguine temperament, was admitted into the hospital Cochin, the 12th of January 1818, presenting the symptoms of an acute rheumatism. He complained at the same time of a pain in the left side and towards the base of the chest, which was well formed, and resounded in its whole extent. The pulse was strong, full, and vibrating; the pulsations of the heart were likewise very strong (très prononcées); the face was rather pale; the skin was covered with an abundant sweat; the tongue was moist and white; the abdomen tense, and sensible to pressure.

"The second day after his admission, the articular pains became more acute, and the least movement rendered them insupportable; the respiration was painful, the tongue red at the edges, the thirst severe; a shivering of two or three hours' duration was followed by violent heat and copious sweats; the pulsations of the

heart were stronger, the vibration of the pulse more marked.

"The same state on the third day and the fourth. On the fifth the symptoms were diminished; but on the following days the rheumatic pains were carried to a higher degree of intensity. *They lessened on the eighth, and the swelling of the joints too was diminished, yet the pulsations of the heart increased in force.* The ninth day a pungent pain was perceived towards the twelfth rib of the left side. It was removed by a bleeding of three porringers (palettes)." (This and a subsequent bleeding are the only attempts throughout the whole course of the disease to save the life or mitigate the sufferings of the unfortunate patient). "The beatings of the heart lost at the same time their intensity, and the pulse became softer; but the pain in the side recurred the following day with palpitations and a vibrating pulse.

"The twelfth day the symptoms of rheumatism disappeared; but the heart continued to beat with great violence, and the vibration of the pulse remained. A state of constipation was corrected by laxatives.

"The fifteenth and sixteenth days, the pulsations of the heart and vibrations of the pulse were less marked.

"The following days, the patient, thinking

himself much better, was preparing to leave the hospital.

"On the first of February, he again experienced a severe pain in the same side of the chest; it ceased in the evening, was renewed on the morrow, again disappeared, returned the day after, and remained.

"On the fifth of February in the evening, the patient, after having walked a long time in the garden, felt a violent shivering, followed by nausea and vomiting, cough, acute pain of the side, painful and even stertorous respiration, with tumultuous palpitations. A bleeding at the arm, performed at midnight, relieved him so much, that he could rise and even walk about on the following day; but the same symptoms were renewed at night.

"On the 8th of February bloody expectoration occurred; the legs began to swell, the extremities to become cold; the pulse was small and irregular; he sank, on the 9th of February, into a comatose state, and died at eight in the evening.

"*Examination.*—The lungs were much gorged with blood. The left lung was pushed (refoulé) towards the upper part of the chest: it was united by some adhesions to the costal pleura. The pericardium contained a little yellowish serosity. The heart was very voluminous. The walls of the left ventricle were more than an

inch thick towards the base; the hypertrophy diminishing towards the point, but being still well marked there. The columnæ carneæ were more developed than in the natural state. The ventricular cavity had more than twice its natural capacity.

"The left auricle and the valves presented nothing remarkable. The parietes of the right ventricle were thin, but its cavity and the auricle of that side were natural. The calibre of the aorta was very small."

This case is instructive in more respects than one. It shows the barbarity in many instances of the expectant medicine; though I believe no British practitioner can require an admonition against acting, or rather omitting to act, as our neighbours did in the present case. The little that was done was ill-timed. The antiphlogistic treatment should have commenced the day he came into the hospital (for the affection of the heart already existed), and should have been vigorously and steadily pursued. It is instructive, too, by illustrating the inflammatory commencement, progress, and occasionally rapid growth of hypertrophy with dilatation. M. Bertin's seventy-ninth case is valuable in the latter respect: enormous hypertrophy with dilatation, the heart being four times the size of the clenched fist of the subject, was formed in fifteen days, and was fatal in twenty.

Such examples of the natural progress of tolerably acute morbid processes are rare in this country. We do not deal in pathological illustrations of this nature; though we have no objection to avail ourselves of them, and I hope for a good purpose, when furnished by others. Had an English practitioner been even ignorant of the situation and probable effect of the process, yet would he have recognized its inflammatory nature, and adopted means to control it. Of this the following case seems to present an example:

Mr. ——, æt. 41, laboured last winter under rheumatism treated by bleeding, and having subsequently proceeded to London by sea, he became ill the day after he left the port, and on his arrival, on the 1st of April, sent for medical assistance. His pain when in town, he said, was in the chest, and was accompanied by *distressing palpitations.* His medical attendant told him the complaint was inflammation of the lungs, combined with some similar affection of the abdominal organs. All the circumstances of the case lead me to believe that the heart was the organ principally implicated. However that may have been, he certainly was vigorously and judiciously treated, by bleeding, &c. and was so much improved as to be enabled to return home without much inconvenience. He still laboured under rheumatism, and had uneasy feelings in the region of the heart. He sent for

his surgeon, Mr. Mordey, by whom he was bled; some medicine was administered, and he was better; but on exerting himself in some matters connected with his vessel he became worse, and I was requested to visit him.

May 18th. He has no pain, but a sense of uneasiness in the precordial region, which he cannot very well describe. The impulse of the heart is exceedingly strong, both in the lower part of the sternum and under the left mamma. The sound of both ventricles is loud and prolonged; that of the auricles is lost in a strong *bruit de soufflet* which exists in both situations. The action of the heart is as distinctly audible under both clavicles as in the precordial space, and there, too, the *bruit de soufflet* is equally discernible. The swelling of the veins of the neck synchronously with the systole of the heart is very conspicuous. There are occasional palpitations; he has considerable dyspnœa, and there is a strong sonorous wheeze on each side of the upper part of the thorax. The pulse is 84, strong and hard; the tongue foul, with a brown fur in the centre; the intellect clear. As he had been freely depleted, I contented myself with prescribing calomel and antimony, to be administered at intervals of four hours, and the precordial space was covered with a large blister. The effect of the plan will be understood from the report of

May 23d. His mouth still sore. The *bruit de soufflet* is removed from the right, though perceptible on the left side. The impulse of the heart is much less forcible: it is not audible under the right clavicle, and but very faintly so under the left. The dyspnœa has ceased; the pulse is 70, soft and calm.

This patient was removed into the country, and during my temporary absence from home had a violent inflammatory attack, affecting, I was informed, the bronchial lining, pulmonary tissue, and even the peritoneum, to which he succumbed in thirty hours. Mr. Mordey kindly preserved the heart for my examination.

It was twice the size of the clenched fist of a man of his stature. The right cavities, particularly the auricle, were dilated. The parietes of the ventricle were not hypertrophied; but the musculi pectinati and columnæ carnæ were much developed. The valves of this side were healthy; the pulmonary artery was dilated proportionally to the dilatation of the cavities. The left cavities were dilated, and the ventricle of this side was considerably hypertrophied, being one inch and a quarter thick at the base. This thickness gradually diminished, as is usual, towards the apex of the organ. The musculi pectinati and columnæ carnæ were very strong. The mitral valve was thickened, and in one point ossified, the ossification becoming continuous with a

similar disease of the sigmoid valves of the aorta, one of which was very considerably and two were partially ossified. The aorta appeared to have a dilatation proportionate to that of the left cavities of the heart. There were red patches on its lining membrane, and some appearance of abrasion: the lining of the ventricle in one point was not free from such appearance.

These are examples of open assaults of disease, calculated, if the expression be allowable, to build up the organ rapidly; and which a practitioner of any energy is at once roused to repel. But frequently the attack is very insidious, and the progress of the disease exceedingly slow, enduring indeed for years. The early symptoms generally commence during a rheumatic attack; but they are so obscure, that they are little heeded by the patient, and probably not mentioned to the medical attendant. The first symptom is usually palpitation, to which succeeds very slight, dull, and obscure pain, generally felt in the precordial region, at the inferior angle of the left scapula, or in both situations. After a time varying in duration according to the degree of chronicity of the disease, the patient, whose rheumatism has now probably disappeared, feels himself unequal to exertion which previously was easy to him, and that perseverance therein induces distressing palpitations. If the pulse be then examined,

in the chest or at the wrist, it will be found either unduly forcible and frequent, or small and irregular; and even during periods of comparative tranquillity a certain degree of excess of force in the action of the heart will be perceptible. The patient frequently becomes sensible of an undue determination of blood to the head, and giddiness. The breathing becomes short, and marks of biliary derangement and tenderness in the epigastric region are not uncommon; particularly if the valvular structure of the heart be affected. If remedial measures be neglected in this stage, or if the patient still persevere in his accustomed pursuits in spite of his uneasy feelings, the disease proceeds to those violent beatings of the heart, the extreme difficulty of breathing, the dropsy, and all the distressing and uncontrollable symptoms which characterise the last stage of hypertrophy. It may be years ere it attain this stage; and with prudent management, an individual, whose circumstances allow a life of leisure, may pass in tolerable comfort to a good old age, although he be affected with the chronic form of the disease.

The following case will furnish an illustration of some of these points:

On the 10th of August 1826, I was requested to visit a gentleman, aged 55, who gave me the following account of the origin and progress of his complaint:—When a boy of sixteen, he

had a severe attack of rheumatism, which was treated by his father, who was a medical man, by one bleeding, and sudorifics. The complaint was severe, and left him lame for some time. He had a second attack in his youth, and remained free from the complaint till December 17th, 1814, when he had a very severe one in consequence of exposure to cold at a funeral. In this disease, bleeding was repeatedly had recourse to, till the whole quantity of blood drawn amounted to sixty ounces. He was confined to bed for a fortnight. When he was in some degree recovered from this attack, he was removed in a carriage to Durham, a distance of thirteen miles, and there had a relapse in the latter end of January. On the third of March 1815, he had the first attack of palpitation, there being still rheumatic inflammation in the knee. He had continued subject to palpitation up to the period of my visiting him. Its attacks were at first relieved by laudanum; afterwards that lost its effect, and bleeding alone produced any abatement of them. These attacks had lately increased in frequency, severity, and duration. I found the heart beating strongly, and over an extended space; and there was a strong pulsation in the epigastrium, which was tender on pressure. He had generally a furred tongue, and the alvine evacuations were dark. The pulse at the wrist was forcible and full, excepting

during palpitations, when it was small, frequent, and irregular. All his uneasy feelings were aggravated by bodily exertion, mental emotions, and external heat. The stethoscopic signs were impulse of the heart so strong on both sides as to lift the head of the observer. It could be felt strongly under each clavicle, more so under the left. The sound was clear in both these situations, and that of both ventricles was very much prolonged, so as to render obscure the sound of the auricles. In moments of perfect calm there was *bruit de soufflet* on the right side.

The remedies employed were general and local bleeding, blue pill until the gums were affected, digitalis, occasional laxatives, blisters to the precordial region, and, subsequently, a seton was introduced and retained for three months. By these means his state was very much improved; and by strict attention to diet, and the regulation of his exercise, regarding which last there is no difficulty, as he is not in any profession or employment, he is still enjoying an existence of great comfort, though not entirely free from complaint.

No one acquainted with diseases of the heart would hesitate to term this hypertrophy with dilatation of both ventricles, and probably some affection of the tricuspid valve.

The following case had not been of so long

standing as this, and the relief which followed the measures adopted was very considerable.

A lady who had long suffered from rheumatism requested my attendance on the 28th of January of the present year. She had still considerable rheumatic inflammation of the left ankle and one of the knuckles, and both these joints were much swollen. Rheumatism, in one situation or another, she has had for years. She complained, besides, of pain in the precordial region, and near the inferior angle of the scapula, constantly existing, but sometimes amounting to extreme intensity; particularly during palpitations, to which she was distressingly subject. There was considerable tenderness of the epigastrium; the pulse was regular, tolerably full and hard; but during the palpitations it changed its character to smallness, great frequency, and irregularity. These symptoms had existed in a greater or less degree since the autumn of 1827, but had lately been much increased. The stethoscopic signs were, great force of impulse and clearness of sound on each side of the heart; the latter being audible over a great extent of the thorax. Bleeding from the arm, and, by cupping, from the precordial region; blisters there; colchicum, blue pill, and digitalis, were the remedies employed. The action of this last exemplified a judicious remark of M. Broussais, that this medicine does no

good when the mucous membranes are the seat of phlogosis; for after one or two applications of leeches to the epigastrium, it was administered with a beneficial effect on the circulation, which had not previously been experienced. A seton was introduced into the precordial region; but the lady being of rather a sensitive habit, the pain it occasioned induced distressing palpitations, on account of which it was withdrawn.

She is still harassed with rheumatism, and on any occasion of extraordinary mental or bodily exertion, experiences palpitation; but her cardiac symptoms have received a great amelioration.

The next case, occurring in an individual in a different class of society, shows the deplorable effects of neglect of this form of disease; the degree of relief which can for a time be afforded even in its most advanced stage; and the complicated nature of the lesions produced by rheumatism.

—— Harrison, æt. 32, a joiner, was first attacked with rheumatism fourteen years ago, apparently from exposure to cold at some races held in a neighbouring village. From that time to the period of his present illness he has had three very severe attacks of inflammatory rheumatism. All these attacks were treated without bleeding, excepting one, and in that, only a single moderate bleeding was performed in the arm. He cannot state very precisely the date

of the commencement of the cardiac disease under which he at present labours; but for years he has felt himself short-breathed, and on attempting to ascend a hill, has frequently been obliged to stop, and even to sit down. He sent for his surgeon, Mr. Dixon, in the middle of March. He was then suffering under rheumatism of the joints; but there were at the same time symptoms of disease of the heart, and these had all been aggravated since the occurrence of the rheumatic attack. There was great pain in the region of the heart, the pulsations of which were very violent, extended, and audible over nearly the whole thorax; there were cough, orthopnœa, and the legs were œdematous. He was bled by Mr. Dixon from the arm, had a blister under the left mamma, and over the lower part of the sternum, and took calomel combined with opium. A few days after, I visited him, and recommended a continuance of the treatment with calomel and opium, and cupping under the left mamma. Subsequently a seton was introduced in the same situation, and the œdema having increased, digitalis and squill were administered. From this treatment some amelioration took place; the patient could lie down in bed, and even walked out, though certainly imprudently. As he became worse, I revisited him on the third of May, when the following symptoms were noted: —

The whole body is shaken by each pulse of the heart, though he is not conscious of this, nor sensible of the heart's action. All the arteries that are visible can be seen to beat strongly, and the heart can be seen and felt beating over an extensive space of the chest. The jugular veins are distended by the obstruction presented to the blood at each systole of the heart. The dyspnœa is great, but does not amount to actual orthopnœa; his legs are still œdematous; pulse at the wrist rapid and hard, but small.

Stethoscopic indications. — Stroke of the heart under the left mamma and at the lower part of the sternum so forcible as to lift the head strongly. On both sides the sound is clear, but more so on the left. The impulse can be felt under both clavicles, and the sound there is very distinct. It is clearly audible on the left side of the back, and in some degree on the right.

Diagnosis: hypertrophy, with dilatation of both sides; and I ventured to add, dilatation of the left side the more considerable.

On the seventh there was profuse hæmoptysis: he died on the ninth.

Examination thirty-four hours after death. — The pericardium contained four ounces of citron-coloured fluid.

The heart was very large, being fully three times the volume of the clenched fist of the

subject. The pericardial surface presented a slight whitened appearance over the left ventricle. The right sinus venarum and auricle were very much dilated, and retained this dilatation after the evacuation of the blood. Their parietes did not seem thickened. The orifice of the coronary vein and the vein itself were much dilated. The tricuspid valve was free from ossification, but presented a thickened, ligamentous feeling and appearance; the columnæ carneæ and pillars of the valve were very much enlarged. The right ventricle was much dilated. The thickness of its parietes towards the pulmonary artery was three-fourths of an inch. This thickening of the parietes diminished considerably towards the apex of the heart, and there totally disappeared. This ventricle did not totally collapse on being incised. The septum was very strong, being eleven lines in thickness.

The left auricle was much dilated. The mitral valve had the same ligamentous feeling and appearance as that of the opposite side, and there was one small ossification near the junction of the valve with the muscular substance of the heart: this ossification felt as if it were common to the two structures. The left ventricle was very much dilated: it was much larger than that of the opposite side. The parietes of this cavity were very thick, being near the aorta $1\frac{1}{4}$ inches, and a little lower down near the mitral valve $1\frac{1}{2}$ inches. This thickness gradually les-

sened thence to the apex, which did not seem much stronger than it is naturally.

The sigmoid valves of the aorta were thickened, and two of them ossified near their bases. A portion of calcareous matter projected into the calibre of the artery, which was of large dimensions. Both of the coronary arteries were much dilated. The lungs, especially the left, seemed as if they had been forced upwards by the encroachment of the heart. Both were strongly adherent to the thoracic parietes. The right lung was the more healthy and crepitating: the left the more condensed, and its bronchia were laden with frothy mucus, and towards its dorsal aspect it had the appearance of the first stage of inflammation (pneumonie des agonisans?).

The mucous membrane of the stomach had in some parts, especially the left extremity of the great curvature, a dark violet hue, as if from venous injection, and was covered with dark tenacious mucus. The liver was of a natural size: its substance, which was of the ordinary firmness, presented on incision a mottled appearance, as if composed of two matters, the one of a fawn colour, the other of a dark brown. The other viscera were healthy. There was some effusion of citron-coloured fluid into the abdomen.

It will have been observed, that the stethoscope did not show the valvular disease: this is explained by the condition of the valves not

having produced any diminution of the auriculo-ventricular apertures.

To multiply examples, which I could do to an irksome extent, might weary the reader, without adding to his conviction. Hypertrophy with dilatation, accompanied frequently by some valvular affection, is, beyond all comparison, the most frequent of the more chronic forms of cardiac disease consequent on rheumatism. But we occasionally meet with passive dilatation apparently derived from the same origin. Of this I think the following case an example:—

Mr.———, æt. 56, had been, as he termed it, "a martyr to rheumatism" from his ninth year. His attacks had been very frequent, and *all* treated without bleeding. He was a very tall stout man, had been accustomed to free living within actual intemperance, and had of late years that bloated appearance and purplish tinge of complexion which are imparted by accumulation in the venous system. I visited him on the 26th February, and found that he had been seriously indisposed from the preceding November. His symptoms had been throughout of the same character with those I found him labouring under: viz. difficulty of breathing, frequently amounting to orthopnœa; pulse remarkably soft and feeble, often scarcely perceptible, sometimes totally so at the wrist, occasionally regular in its feebleness, at other times irregular and in-

termittent; the movements of the heart were not felt by the hand applied to the thorax; the skin was remarkably cold over its whole extent, and bedewed with clammy sweats; the cheeks and lips were purple, and the veins of the conjunctivæ laden with dark-coloured blood; there were great tendency to serous effusion, and scantiness of the urinary secretion; epigastric tenderness and distention, anorexia and occasional vomiting. Some days before death a deep bilious suffusion took place. The heart imparted no impulse to the stethoscope; but the sound of its movements was remarkably clear, not only in the precordial region, but under both clavicles, and even in the back. During my attendance, dropsical effusion, which had previously existed, increased to a prodigious extent. Diuretics had little effect; but it was removed by the occurrence of erythematic inflammation on the legs and scrotum, followed by phlyctenæ, by the rupture of which the serum was discharged. Messrs. Dobson and Green, who attended the case with me, and myself, had thought it imprudent to perform incisions for the relief of the effusion, from apprehension of gangrene, to which we deemed the general habits and state of the patient would render him prone. Gangrene to a great extent occurred in both extremities from the spontaneous effort for relief; but considerable temporary alleviation of

the patient's sufferings followed the evacuation. He ultimately sank and died on the eighth of April. An examination was requested, but denied. I have thought it unnecessary to give a detail of the remedies employed in a stage of disease when our control is at an end, and which were frequently varied, to gratify the very excusable caprice of our afflicted patient. It is not in this stage that our efforts can be beneficial, and his medical attendants had no opportunity afforded them of preventing it.

In concluding this portion of my Essay, I beg to repeat, that the majority of diseases of the organ which have fallen under my observation have occurred in rheumatic patients; and this frequency of coincidence ought to be deemed sufficient evidence of connexion. Of the rheumatic, only a portion become the subjects of disease of the heart, as, of a number of persons exposed to the atmospheric or other causes which engender diseases, only a portion become affected. In observations on the living frame, we are obliged to accept a less uniform succession of phenomena as evidence of connexion, than in experiments on inorganic matter. There can be no doubt that nature acts by laws as fixed and consistent in the one case as in the other; but in the former a part of the phenomena are unperceived by us — we behold, as it were, only the extreme links of a chain of per-

haps varying length; whereas were the intermediate ones equally visible, we should doubtless perceive in what consists that peculiarity, which we are at present satisfied to describe by the phrases susceptibility and insusceptibility of certain diseases.

Treatment of diseases of the heart.

In the more acute and open forms there can be no doubt of the propriety of applying the most powerful remedies of inflammation, and consequently little risk of their being delayed. I shall therefore refer to the Essay on Inflammation, and the cases which have been detailed, for a description of the mode and extent of their application, only impressing on the mind of the practitioner the necessity of as early an employment of them as possible, whether the attack be on the pericardium or the muscular substance of the organ.

It is the more insidious commencement of the disease which is most likely to escape the observation of the patient and physician. When the disease is the concomitant or immediate sequela of rheumatism, as a medical man is then generally in attendance, an opportunity will most probably be afforded of preventing irreparable mischief which should not be allowed to escape.

Bleeding, general and local; counter-irritation by blisters and setons; mercury and digitalis, are the remedies on which I should place most reliance. In the treatment of all idiopathic diseases of the heart, one great rule is, *to give the organ as little as possible to do;* and this object should be steadily kept in view in all the means we adopt: for without it all other means are nugatory. To employ an inflamed organ is to increase the inflammation; but as the heart must be employed so long as life lasts, we should endeavour to make its natural condition as little injurious to it as possible, by doing every thing calculated to diminish, and avoiding all that can add to, its labour. By hygienic arrangements; by keeping the volume of the circulating mass at a low ebb; by cautiously avoiding all irritants of the organ, we may frequently, especially in young subjects, cure the disease almost without medicine. As a consequence of this principle, the diet should be as unstimulating and innutritive as is consistent with the necessary demands of the frame, and so arranged as not to be calculated to distend the vascular system with liquids; and the greatest stillness of body and mind should be observed. I need scarcely remark, that our remedial measures should be proportioned to the exigencies of the case. Whatever may be the ultimate form of the disease, its rudiments are, I am convinced, in an immense ma-

jority of instances, inflammatory; and this simple enunciation will be sufficient to arouse all to an early care of them.

When the chronic form is established, we are presented with two great classes, between which the line of demarcation is broad and distinct. In the one there is excess, in the other deficiency of power in the heart. Over the former, fortunately the most frequent, our control is considerable; over the latter more limited. Each may or may not be complicated with valvular disease; but the existence of this does not annul the general principles of treatment applicable to each.

When there is excess of power, in other words in hypertrophy, our remedial and dietetic measures should still be those adapted to inflammation. We know not when this process may have accomplished its object. I have little doubt that it frequently lasts for years; and if summoned to a case which was not evidently lost, I should still employ the remedies of inflammation, especially bleeding, general and local, digitalis, counter-irritation (the best form of applying which in this stage I deem a seton), and mercury. The power of this mineral is wonderful in these cases: frequently has its effect surpassed my most sanguine expectations; and only in extremity should we despair of administering it with benefit. I need scarcely observe, that the

grand rule of diet and regimen finds here its strictest application.

The second class, that with deficient power, of which passive dilatation or aneurism is the general form, though I believe it has the same origin as the other, yet when fully established requires very different treatment. We have here two conflicting indications: the prevention or remedying of plethora — for from the accumulation of blood in the pulmonary and venous system the patient's most distressing symptoms arise — and the supporting, as far as in us lies, of the power of the heart. The patient will not bear the rigid diet of the former state. A spare diet with a proportion of animal food, and as little liquid as possible, I have generally found the most suitable. When the heart's action has been very feeble, I have found myself obliged to allow a little stimulus, and have thought spirit and water the most proper, as having the least tendency to induce plethora. An occasional *small* bleeding lessens the plethora, and relieves the difficulty of breathing: it is in this way more beneficial than injurious, by diminishing the heart's power; but it must be rarely and sparingly practised. I have thought counter-irritation by a seton beneficial. As will be readily understood from what has been stated regarding accumulation in the venous system, which is so marked a feature of this form of disease even when it

is uncomplicated with affection of the valves, though still more conspicuous when such affection exists, the liver becomes gorged with blood, and this together with the distention of the veins of the stomach, induces great fulness and uneasiness of the hypochondriac and epigastric regions, which add considerably to the patient's distress. Leeches and blisters to these parts, with a moderate quantity of blue pill and a *small* proportion of calomel, I have found the appropriate remedies of this gastric and hepatic derangement.

The very great relief to all the symptoms, not only of this form of disorder, but likewise of that of redundant strength, which follows an abundant serous effusion, is well deserving attention. When dropsy has formed rapidly, as it occasionally does, the amelioration of the patient's feelings has been sudden and striking. This I have so repeatedly observed, not only in diseases of the heart, but in other internal maladies, that I cannot help regarding dropsy as an effort of nature to relieve that more or less general venous accumulation, on which a great portion of the patient's distressful feeling depends. As in the disease we are now considering the venous congestion is very general, so is the relief proportionably great; and if we can excite the kidneys to the evacuation of the accumulated fluid, we shall effect more for the patient's comfort than

all other means could have accomplished. In passive dilatation, I generally employ for this purpose squill, with, for an obvious reason, a *small* proportion of digitalis. In dropsy from hypertrophy, I give digitalis more boldly. In this latter case our object is generally more easily accomplished than in passive dilatation. Should we fail to excite the action of the kidneys, recourse must be had to hydragogue purgatives for the evacuation of the accumulated fluid. Of these I have not found any preferable to the pulvis jalapæ compositus: gamboge and elaterium may be usefully employed for the same purpose.

Opium, which, in combination with calomel and antimony, we may administer fearlessly and beneficially in hypertrophy, must be sparingly and cautiously used in passive dilatation. I have seen alarming and heard of fatal effects from a full dose. The reason is obvious; it diminishes further the already too feeble action of the heart. In this form of disease I have found it require more caution than even digitalis.

In neuralgia of the heart, which I could not trace to an affection of any other organ, an alterative course of compound calomel pill, or the blue pill with antimonial powder, has generally been adopted: the bowels have been regulated by magnesia or other gentle laxatives; and counter-irritation, by blisters, tartar emetic

ointment, or a seton, has been employed. To this portion of the treatment I have been led by having generally found indications, sometimes I grant but slight, at others more considerable, of hypertrophy existing in conjunction with those which marked the neuralgic affection, when this was not clearly sympathetic of some disorder of an organ remote from the heart. Besides these remedies, opiates have been freely and successfully employed to subdue the paroxysms of pain.

ESSAY VI.

ON SYMPATHETIC DISORDER OF THE HEART.

It is a remark as old as Bonetus *, and which is repeated by Morgagni and other writers of the last century, that it is difficult to distinguish between idiopathic and sympathetic affections of the heart. Does the difficulty still exist? The almost total silence regarding it of the French writers who have recently bestowed such laudable pains on the illustration of this class of diseases would seem to imply an answer in the negative, probably founded on the additional power of surmounting it with which the stethoscope has armed them. But as Corvisart, who possessed over the authors who observed and deplored the difficulty only the little advantage afforded by percussion, rather slights it than grapples with it, a suspicion may arise that the physicians of that nation possess an overweening confidence in their discriminative powers. I find that this confidence is not shared by the practitioners of this country, but that some even of those who have at least endeavoured to make them-

* Arduum est palpitationem cordis per consensum partium inferiorum inductam ab idiopathicâ distinguere." 16. In schol.

selves masters of the indications which the cylinder presents still regret the difficulty; and lately a physician whose name, did I feel at liberty to mention it, would give weight to any opinion, declared to me he thought it insurmountable. I hope this is not the case; but the existence of such an opinion in such a quarter, and the general impression that the diagnosis is involved in great perplexity, render it incumbent on those whose attention has been directed to the subject, to endeavour to elucidate it. When there is any considerable degree of hypertrophy, dilatation, or valvular affection which presents an obstacle to the circulation, then the stethoscope applied at periods of perfect mental and bodily repose, and attention to the degree and permanence of the general symptoms, will remove all doubt; and even in the more rudimental state, when accuracy of diagnosis is perhaps of most importance to the patient, minute attention to all the circumstances will, I think, enable us to distinguish incipient structural change from those occasional irregularities in the action of the organ which still depend only on disorders of other parts of our frame. By presenting a view of the states of the system in which these simulating affections occur, describing the affections, and endeavouring to show wherein they differ from the symptoms of actual disease of the organ, should I even fail in esta-

blishing precise marks by which they may at once be distinguished, yet shall I probably succeed in indicating the kind of analysis of symptoms and circumstances which is likely to lead to a correct conclusion.

To obviate the intrusion of a logomachy, respecting the action of an organ being merely an organ acting, to which I admit that the distinction between functional and structural disease is in some degree exposed, I may remark, that by a sympathetic affection I mean some disorder of an organ so far dependent on a disorder of another organ, that if this were to cease, the former would no longer exist, without pretending to define further the nature of the secondary affection. There can be little doubt, and it has been admitted in the preceding Essay, that in the case of the heart, as of other organs, these sympathetic affections long continued may attain an independent existence.

So far as I have observed, the following, singly or in combination, are the indications of this sympathetic disorder—palpitation, intermittence of action, pain in the region of the heart, and occasionally a tendency to syncope; and these may be induced by physical lesions of the brain and spinal marrow, by mental emotions, by disorder of the digestive organs, of the uterus, and perhaps we may add, of the urinary apparatus. Disease of the lungs affects the heart;

but the disorder hence resulting speedily becomes, for reasons which have been explained in the preceding Essay, positive hypertrophy, or other structural disease of the organ.

Palpitation is a series of pulsations of the heart, perceptible by the patient, and irksome to him, and deviating from the healthy state with respect to frequency, force, and occasionally regularity. Now there are two circumstances to be considered here, the actual movement of the heart, and the individual's perception of it. The action of the heart, like that of other internal organs, when perfectly healthy, proceeds unperceived by its owner; but in sensitive states of mind, the patient may be conscious of deviations from the healthy character, very slight in degree. I have repeatedly found dyspeptic and hysterical patients complaining of distressing palpitations, when in truth the heart's action, explored by the stethoscope, though found to be frequent, forcible, or irregular, was by no means very considerably so. Occasionally, I allow that palpitations which are distressing to the patient are evidently violent to the bystander. Yet, whether they be slight or violent, a comprehensive view of all the circumstances of the case will generally show to an experienced eye points of discrepancy between some of these circumstances and those attendant on disease seated in the organ.

The kind of intermission commonly observed in these sympathetic affections is a simple absence of a complete pulsation recurring at intervals of varying duration. It resembles, indeed, the pulse described by Solano as indicative of critical diarrhœa, and, like that, is commonly induced by some disordered action or irritation of the alimentary canal. This sympathetic irregularity is in nothing more remarkable than the patient's immediate perception of it. We all know, in diseases of the heart, how many irregularities take place unperceived by the patient. In sympathetic affections the slightest interruption is instantly perceptible to him. If the heart miss one stroke in a minute, the individual will exclaim, "Now my pulse is intermitting;" but before the finger can be applied to the wrist, all is again regular. In general, the disproportion between the degree of deviation from the healthy action of the organ, and the patient's perception and appreciation of it, is a conspicuous feature of these affections.

There is generally, too, a difference between the two orders of diseases in the kind of irregularity, or intermission of action: for instance, we never find in the sympathetic variety any irregularity resembling that described in the preceding Essay, in which the heart makes unavailing struggles to empty its cavities, and produces under-beats scarcely to be detected by the finger of the observer.

Allowing that a certain degree of remission of symptoms attends actual structural affections of the heart, or is producible in them by rest and remedies, yet is there not the occurrence of that total absence of all indications of cardiac disease which we so constantly find in its sympathetic disorders. In the idiopathic form, some deviation from the healthy rhythm, force, extent, or sound of the heart's movements will generally be perceived in moments of the greatest calm. In the sympathetic, the patient will be for days entirely exempt from all indications of disordered action of the organ.

The concomitant affections, too, tend to throw light upon the real nature of the disease. In the dyspeptic form, for instance, there are manifest indications of derangement of the digestive canal, such as inappetency, epigastric distention after taking food, irregular bowels, furred tongue, &c. and then the palpitation or other irregularity is often induced by some cause acting immediately on the stomach. Thus it often occurs during the exhausted feeling of inanition which some persons who dine late experience in a forenoon. Occasionally it takes place regularly after dinner. A young gentleman who dined at six o'clock off three or four dishes, with a proportion of wine, was assailed daily with palpitations immediately after this meal. By changing the hour to two o'clock, limiting himself to one dish

of roast or broiled meat with stale bread, and using toast water as his diluent, he was soon relieved from his palpitations.

In this dyspeptic form the expulsion of flatus from the stomach frequently removes the irregular action of the heart. The same effect often follows an offensive fecal discharge. When hysteria is the cause, then will there be globus, occasional convulsive movements of the muscles, and that extreme sensitiveness and mobility of mind, which are the prominent features of this disease.

In the chlorotic form, in which the disposition to syncope is most perceptible, there are the general indications of debility, imperfect digestion and sanguification, which attend that complaint. The appetite is deficient, or depraved; the bowels are irregular; the complexion is pale or sallow; the lips, tongue, and gums are bloodless; the face is swollen; the catameniæ are deficient, pale, and irregular — in short, there are the symptoms attributed by authors to chlorosis.

Moral emotions are a prolific source of the mere sympathetic or functional affection; and a case was mentioned in the preceding Essay, in which actual organic disease seemed to have had the same origin; and the high authority of Corvisart was quoted in support of the probability of such causation. Should the disordered action

subside on the alleviation of the mental distress, it will be evident that it has been merely sympathetic. Physical irritation of the brain will produce the same effect; but here, too, there will be found circumstances accompanying the cardiac disorder, which will distinguish it from that originating in causes seated in the viscus. In the following case, for instance, extracted from Morgagni, they showed Valsalva the real situation of the disease.

" A nobleman, whose health had long been bad, seven months before his death began to observe that when he ascended a staircase, or walked more quickly than usual, even on level ground, or moved his arms as in dressing himself, a distressing sense of coldness occurred at the lower part of the sternum. This feeling was gradually converted in the course of a month or two into acute pain, which seemed to ascend to the head of the patient, and then there was a cessation of sight, pulse, and sense. Though these feelings were excited in the commencement by exertion, yet afterwards fainting occurred when the patient was at rest. These sensations" (considerably resembling those attending angina pectoris) " were complicated with affections of other parts of the frame, which seem to have led Valsalva to a knowledge of their real origin. He being consulted reprobated every thing calculated to produce fulness

or turgescence of blood or its impulse to the head, and recommended only what would have effects the very opposite of these. Often during the day, and occasionally during the night, there were convulsive movements, sometimes of the whole body, at other times of certain parts, especially of the eyelids and left arm: occasionally convulsion with pain seized a certain finger of the right hand; sometimes numbness affected this hand and the corresponding leg; at times all sensation ceased in both arms, or pain affected both. Frequently there was pain of the upper part of the head, or a sense of constriction or pain at the occiput. Dissection showed the viscera of the *thorax* and abdomen perfectly healthy; but on opening the head, five bones, of various form and magnitude, but all rough with sharp inequalities, were found on the falciform process of the dura mater. They occupied more than two-thirds of the whole length of the process. This was the only morbid change discovered."*

The resemblance of a portion of this patient's symptoms to angina pectoris was considerable; but their complication with signs clearly referrible to another source than the heart showed one of the medical attendants the real seat of the disorder. I think the case calculated to induce a suspicion that angina pectoris is a spasm of the

* De Sedibus et Causis. Lib. ii. Epist. xxv. Cap. 6.

heart, depending frequently on an irritation of distant parts of the frame, and that a knowledge of the real nature of the disease is more likely to receive illustration from a minute examination of the digestive canal or the brain than of the principal organ of circulation, which has hitherto furnished only contradictory results.

This opinion receives confirmation from the following case, in which the uneasy feeling in the region of the heart, though certainly calculated to alarm both the patient and the physician, seemed merely symptomatic of some disorder of the stomach.

Mr. ——, æt. 34, who some months previously had been the subject of dyspepsia, which was speedily relieved by regulated diet and sulphate of quinine, complained to me, on May 22. 1827, of pain in the region of the heart, and occasional palpitation. The organ explored by the stethoscope displayed nothing unnatural. It beat regularly at sixty in a minute. The pain extended itself from the region of the heart upwards and across the chest, and ran down the left arm, on the inner side of the biceps, nearly in the direction of the brachial artery. It occasionally became distressingly acute in the palm of the hand. He is of an anxious turn of mind, and he acknowledged that the pressure of the times weighed upon his spirits: he had perceptibly lost flesh, and said he felt feeble. His

tongue was rather furred, and he stated that the uneasy feelings which he described to me occurred particularly after dinner.

℞. Pilulæ Hydrarg. Submur. comp.
Pilulæ Hydrarg. āā. ʒss. Misce et divide in pilulas xx.
quar. sumat ij. omni nocte.

℞. Quininæ Sulphatis gr. ix.
Aquæ Cinnamomi ʒvj.
Spiritûs Lavandulæ comp. ʒj. Misce.
Sumat ʒj. bis die.

By these means and regulated diet he was speedily restored to health, and has since continued well.

The following singular case is from the same invaluable repository of facts whence that of the nobleman was drawn: — "A woman was attacked with palpitation. Blood taken from the arm relieved her for two days. At the end of that time the palpitation recurred with such violence, that the chest could be seen to be raised at each stroke of the heart. At the same time there was such pain in the thorax, and fever, as excited a suspicion of pneumonia. A repetition of bleeding from the arm was attended with no advantage; and after she lost some blood from a vein of the foot, the pulse became less and less forcible, but more frequent, and in an hour she died. Some blood flowed from the mouth of the corpse, yet in the thorax and abdomen every thing was found healthy. They did not touch

the head, as there had been no indication of disease there."* The omission is to be regretted, for the palpitation being apparently sympathetic, and, from the fatality of the disease, we may presume of some important organ, and the contents of the other cavities being healthy, in the head only could the cause of it have been discovered.

The effects of remedies and regimen on the sympathetic are very different from those which the same means would produce on the idiopathic disease. In the dyspeptic, for instance, regulated diet, horse exercise, occasionally a mild mercurial alterative, small doses of sulphate of quinine, regulation of the bowels by rhubarb and magnesia, or Harrogate water†, especially the

* De Sedibus et Causis. Lib. ii. Epist. xxiii. Cap. 2.

† Those only who have experienced it can appreciate the invigorating effect of this water in debilitated states of the stomach and other organs. The patient may undergo its operation daily for three weeks or a month, not only without loss, but with considerable increase of flesh and strength. This is to be explained by its combining great stimulant and tonic with its purgative power. But those properties render its employment inexpedient in any inflammatory affection, wherever seated: it is a remedy only of debilitated states of the system. The great degree, too, in which they exist, makes its purgative operation necessary; for few habits can bear without inconvenience its exciting effect when it fails to act on the bowels. Hence individuals in whom these organs are habitually torpid should secure its action upon them by a few grains of extract of colocynth or other purgative at night, when the water is to be taken

latter, which is so much less debilitating than the officinal laxatives, will remove all the cardiac symptoms; though, had these depended on actual disease of the organ, they would have been aggravated by some of the means employed. The exercise, for instance, would have been prejudicial; for it may be considered a general rule, that it aggravates the symptoms of organic disease of the heart; but in the sympathetic af-

in the morning. In derangement of the digestive organs, uncomplicated with inflammation, personal experience has convinced me that it is the most powerful of remedies, travelling excepted; and it is obvious that it may be employed in states of debility so great, as to preclude the latter. In fact, it may be used successfully to bring the system into a condition which will render a journey admissible. Its great tonic power I am disposed to attribute quite as much to the muriatic salts with which it abounds, as the following table of its analysis will show, as to the sulphuretted hydrogen, having remarked that other sulphureous waters, which are nearly destitute of the muriates, do not possess it in the same degree:—

One gallon contains,

Of Sulphuretted Hydrogen	14	Cubic inches.
Carbonic Acid	4.25	
Azote	8	
Carburetted Hydrogen	4.15	
	30.4	Cubic inches.

Of Muriate of Soda	752	Grains
Muriate of Lime	65.75	
Muriate of Magnesia	29.2	
Bi-Carbonate of Soda	12.8	
	859.75	Grains.

fection, taken at moments when the disordered or excessive action of the organ has subsided, it is not only innocuous, but beneficial. From the exciting qualities of sulphate of quinine and Harrogate water, their effects, too, on structural disease of the heart, would be decidedly injurious, whilst in its sympathetic disorders they are taken with advantage.

Should the irregular action of the organ arise from sympathy with the uterine system, then too will it be found remediable by means which would have no beneficial influence over the idiopathic disease. A young lady harassed by palpitations, disposition to syncope, and feelings of great uneasiness in the region of the heart, but having at the same time pale, unfrequent, and scanty catamenial discharge, and other indications of chlorosis, was relieved from all her complaints by regular and gradually-increased exercise, with a course of sulphate of iron and compound decoction of aloes.

In conclusion, I may remark, that though difficulty may be experienced in the diagnosis, yet by strict attention to the nature and permanence of the symptoms, to the concomitant affections, and occasionally to the influence of agents on the complaint, our efforts to distinguish these mimetic affections from disease seated in the heart itself will rarely fail to be crowned with success.

ESSAY VII.

ON ISCHURIA RENALIS.

On the eleventh of January 1827, I was requested to visit Mr. ——, æt. 73, and received the following history of his case: — He was attacked on the morning of the eighth of the month with severe pain in the left iliac region, which had continued to recur at intervals of some hours, and since the first attack he had discharged no urine. Some blood which exhibited a strong fibrinous coat had been drawn by his surgeon, Mr. Barnes, and his bowels had been freely acted upon.

At the time of my visit he had no pain, and none was elicited by the most accurate pressure over the kidneys or the ureters. His pulse was 74, full, and rather hard. His tongue was furred, and he complained of thirst. He assured me that he had not discharged *a drop* of urine since nine A. M. of the eighth instant. Though there was no fulness of the hypogastrium, yet I directed the catheter to be introduced, which was done with the greatest ease, but it was withdrawn perfectly dry. He had previously enjoyed very good health, and had not been subject to gout or gravel. Twenty ounces of very sizy

blood were drawn from the arm, and as there had been no discharge from the bowels that morning, a cathartic mixture was prescribed.

12th. His state is precisely the same. No urine has been discharged, and there is evidently none in the bladder. He had during the night a severe paroxysm of pain in the direction of the left ureter. At present he is free from it, and firm pressure over the kidneys and ureters excites none. He complains of a salt taste, and of thirst. On being questioned as to the state of his head, he replies that he feels it rather dull from lying constantly in bed. The bowels have not acted freely this morning.

℞. Magnesiæ Sulphatis ℥ij.
Infusi Sennæ ℥x.
Olei Terebinthinæ,
Olei Ricini, āā. ℥iss. Misce ut fiat enema statim injiciendum.

℞. Extracti Colocynthidis comp. ℈ij.
Pulveris Scillæ gr. xij.
Syrupi q. s. s. ut fiant pilulæ xij. Sumat ij. omni tertiâ horâ.

Admoveantur hirudines xx. lumbis.

13th. The patient had severe pain in the iliac region of each side during the night, but it had subsided previously to my visit. His general state is the same as before, excepting that his pulse is softer and the skin more moist. He converses composedly and cheerfully. There is not the slightest appearance of urine. The bowels have acted freely.

℞. Hydrargyri Submuriatis gr. xxiv.
Pulveris Scillæ gr. vj.
Pulveris Zingiberis gr. xviij.
Confectionis Rosæ q. s. s. ut fiant pilulæ xxiv. Sumat ij. omni tertiâ horâ.
Applicetur lumbis Emplastrum Lyttæ amplum.
The blistered part to be dressed with strong mercurial ointment.

14th. 8 A. M. No change since yesterday. Bowels continue open. Not a single drop of urine has been discharged. It is scarcely necessary to observe, that the hypogastrium is constantly examined; but as there is no tumour there, and as there is evidently no obstruction in the urethra, it is not deemed requisite to incommode the patient by repeatedly passing the catheter.

The terebinthinate enema to be repeated, and the pills with calomel and squill to be continued.

Same day, 3 P. M. There is mercurial fœtor of the breath. The attending surgeon and myself had just left the room, after examining the patient, when we were recalled and informed he had passed some urine on his bed-clothes. On our entering, he rose from bed and discharged about four ounces of high-coloured urine into the night-chair.

His pills to be continued.

15th, 10 A. M. The discharge of urine has continued since last visit, five pints and a half of clear pale fluid having been evacuated. The

patient seems exhausted; pulse 90; mouth a good deal affected.

℞. Tincturæ Opii ℥xl.
Aquæ Cinnamomi ʒvj. Misce et statim sumatur.

16th. He has no complaint but the soreness of the mouth. The urine is secreted in proper quantity, and is of a healthy appearance.

From this time the progress of my patient was uninterrupted, and he has remained since in perfect health.

The question occurs, What was this disease? Was it the "paruria retentionis renalis," or the "paruria inops," of Dr. Good? In other words, was the urine secreted, and retained in the kidney, or was the secretion actually suspended for six days and six hours, for that was the precise period during which it was imperceptible? I incline to the latter opinion; for had there been secretion and retention of the secreted fluid in the pelvis of the kidney, there must have been some evidence of its presence there, which there was not. The most accurate pressure detected no swelling and elicited no pain, nor was there any sense of weight in the loins. The pain in the course of the left ureter led me at first to suspect the presence of a calculus there, preventing the flow of urine from the corresponding kidney; whilst I conceived the function of that of the right side was sympathetically sus-

pended; but the total cessation of all pain, the functions of those organs being still apparently in abeyance, induced me to abandon that opinion. I may remark, that there has been no calculus discharged, nor have there been symptoms indicating the presence of any in the bladder; — additional reasons for my concluding that the pain in the ureter indicated *that* inflammation of the kidney, to which I am disposed to attribute the interruption of its secretion. The absence of pain in the part supposed to be affected will not perhaps be considered as presenting a valid objection to this opinion, if we reflect on the little sensibility of parenchymatous structures, and that the depth at which the organ lies renders it difficult to extort pain from it by pressure. Instances of sympathetic exceeding primary pain, indeed of the former being acute, whilst the latter is scarcely or not at all perceptible, are too frequent to require quoting. It will have been observed, that, on the thirteenth, pain was felt in both ureters: hence we may perhaps presume that both kidneys were affected, and that the suspension of the action of the gland of the right side was not purely sympathetic.

In the treatment of the case I acted on the presumption of inflammation existing. The terebinthinate enemata, the squill, the blister to the loins, and the mercury were employed

advisedly as stimulants in the advanced stage of inflammation after free depletion. I feel respecting the effect of these remedies that diffidence which is one of the first fruits of experience; but I shall venture to point out the simultaneous occurrence of mercurial fœtor of the breath and restoration of the urinary secretion as furnishing presumptive evidence of the mineral having been beneficial.

The supposition that the suspension of secretion arose from the cause to which I am disposed to ascribe it derives confirmation from the following case and dissection: —

Mr. ———, long subject to gout and gravel, was attacked with ischuria renalis in March 1822. At that time there was at least no appearance of urinary secretion for eleven days and some hours. None was discharged; there was no distention of the hypogastrium; and the catheter was more than once introduced and withdrawn perfectly dry. There was little or no pain; but the blood which was taken from the arm displayed a strong buffy coat. At the expiration of the time mentioned a copious flow of urine took place, with the expulsion of a moderately-sized calculus; and a tendency to coma, which evidently existed, immediately disappeared, the patient being restored to his usual health. He had previously passed much larger

calculi without any preceding suspension of the urinary secretion.

I was requested to visit the same gentleman at 10 P. M. of the 30th of April 1828. I found him in a state of great exhaustion, with a weak intermittent pulse, his skin bathed in cold perspiration, his tongue dry and brown, and his breathing laborious. He was complaining of agonizing pain diffusing itself from the region of the kidneys over the whole abdomen. He was evidently sinking. I received the following account of his attack from his son, a medical man, who had treated the case to the period of my visit:—"It commenced in the form of gout, affecting the knee and great toe. After the expiration of a week he passed a calculus. From that time till the 22d of April he appeared to be quite easy, but much inclined to dose with startings. Then came a most violent accession of gout, affecting his knee, feet, and hands. This receded suddenly on the morning of the 30th, with the supervention of excruciating pain in the kidneys and course of the left ureter, the urinary secretion being at the same time suspended. He continued referring his sense of suffering to the region of the kidneys, bowels, and stomach in succession." There was no appearance of urinary secretion from the time of the pain invading the kidney, early in the morning of the 30th, till his death, which took place on the following day at 5 A. M.

Appearances on dissection. — The abdomen only was examined.

The general aspect of the peritoneal surface was healthy. The liver was small for the subject, and indurated. It presented a mottled appearance, as if composed of two matters, the one pale brown, the other buff. The gall-bladder contained two ounces of viscid bile of a dark olive colour.

The mucous membrane of the stomach presented an appearance of vascularity in one point of the great curvature near the cardia. The appearance was slight; the vessels were arranged in a stellated manner.

Kidneys.—The adipose substance immediately surrounding these, and forming a sort of capsule to them, was intensely vascular, and over the surface of each gland there was lymph effused, which was insensibly lost in the adjacent fat. Vessels ramified freely through this lymph. Both kidneys were small; their surface presented an irregular lobulated appearance; their cortical substance was peculiarly *pale*, and as *soft* as spleen. The tubular portion and pelves seemed healthy. Each of the latter contained some very small granules of calculous matter. The ureters were healthy, and pervious to the bladder. None of these organs contained a single drop of urine.

In the first attack suffered by the patient, I am of opinion, that the suspension of secretion arose

from inflammation of the kidneys, not from the presence of the comparatively small calculus which was expelled. He had previously, as has already been remarked, discharged much larger calculi without the occurrence of such suspension; and, as his constitution was less broken down by gout and gravel than at the period of the fatal attack, we had ample opportunities of witnessing the intensely sizy appearance of the blood drawn from his arm. In the second and fatal disease, the suspension of secretion, though of short duration, was complete. The very small granules which were found in the pelves of the kidneys furnished of course no explanation of this. The marks of inflammation on the surface of these glands were unequivocal; and those who have been accustomed to pathological research will refer to the same cause the *pale* and *softened* state of their cortical substance.

In a third case which I witnessed, and which terminated fatally, there was little or no pain; but the blood drawn from the patient presented a fibrinous coat as strong as that exhibited in pleurisy or rheumatism. There was not *total* suspension of secretion. My first visit was made on a Monday, and the whole of the urine discharged from the preceding Wednesday was produced: it did not amount to two drachms. He lived a week after this visit, still discharging occasionally a drop or two of urine. As he re-

sided at a distance of ten miles from my house, and I did not see him during the last three days of his existence, I cannot state precisely the mode in which life was terminated, and I had no opportunity of requesting an examination.

In the cases which have fallen under my observation, I was not conscious of any urinous smell of the perspirable matter, nor was there any vicarious discharge, excepting that which I always took care to establish from the bowels. The coma stated to be a usual concomitant of the disease by Sir H. Halford in his valuable paper in the sixth volume of Medical Transactions, existed during the first attack of the subject of the second case, but speedily disappeared on the restoration of the secretion : it did not exist in the other cases. On another point my experience is at variance with that of this very able physician and amiable man. He has limited to three days the period during which the functions of the kidneys can be completely suspended without fatality: now it will have been observed that in one of the cases detailed in this Essay, total suspension existed for six days and six hours, and in another for eleven days, yet did the patients recover.

There are not wanting in the animal economy other examples of secretions being suspended by inflammation. When the liver is the seat of this affection, we occasionally find that large

quantities of dark-coloured bile are poured into the bowels; but in more intense degrees of it, the alvine evacuations are white and clayey. The same is exemplified in the follicles of the mucous membranes: the gradual transition from the intense degree of inflammation which annuls secretion to the slighter grade which augments it, is admirably displayed in pneumonia and pulmonary catarrh.

I will venture to suggest that ischuria renalis should be treated on the ordinary principles applicable to inflammation, modified in degree according to the constitutions of the individuals who are *usually* the subjects of the disease—men whose stamina are impaired by gout and gravel, or by the habits which occasionally engender these maladies. I have said *usually*, for one example has been given of a perfectly-formed case of the disease in a person of temperate habits, and free from any lithic or gouty diathesis. Where time is allowed for it, mercury after *due* depletion should not, I think, be omitted. It might perhaps be advantageously conjoined with squill or other moderately-stimulating diuretic. On all occasions, when it is desirable to affect the system rapidly with the mineral, I can recommend the plan adopted in the first case, detaching the cuticle from a large blistered surface, and dressing with strong mercurial ointment. Local bleeding from the loins may be useful; nor should

the irritating effect of blisters on the bladder lead us to assume that their action on the inflamed kidneys will be prejudicial. Purgatives should be employed, not merely as a means of diminishing inflammation, but as tending to prevent that effusion into the ventricles of the brain, which is the most probable cause of fatality in this disease.

ESSAY VIII.

ON STRICTURE OF THE SIGMOID FLEXURE OF THE COLON.

This form of disease is of frequent occurrence; and individual cases of it have been ably detailed by Mr. Greenhow of Newcastle * and other writers; but, so far as I know, such a detailed enumeration of its general symptoms has not any where been given as to render its real situation and nature easily discernible during the life of the patient. So many cases of it have fallen under my observation, that I think I can always recognise it, and hope to be able to state the indications by which its existence will be rendered equally perceptible to others; a point which may be found not entirely devoid of practical utility.

The following is the anatomical state of parts which post mortem examination displays:—A stricture, varying in length from one inch to four, is found at the sigmoid flexure of the colon. At this point the parietes of the intestine are entirely changed from their natural elastic

* Vide Edinburgh Medical and Surgical Journal, vol. 17. p. 355.

structure, and have become hardened and thickened; the peritoneal and muscular coats, and the peripheral surface of the mucous membrane, feeling and appearing as though they were agglutinated by a dense matter effused among them, till all trace of their original tissue was lost. The mucous surface of the strictured part is strongly injected with blood, and frequently ulcerated. The calibre of this portion of intestine is so much diminished, that a crow-quill will scarcely pass through it. A considerable period, marked by feelings of greater or less, but progressively-increasing uneasiness, may intervene between the commencement of the disease and its attaining this impermeable state which proves fatal: in one case I found, from a very distinct narration, that this period had embraced eleven years.

The most usual mode of fatality in the cases which have fallen under my observation has been as follows: apparently as a consequence of extreme distention, inflammation, and finally ulceration of the great intestine, with effusion of its contents into the cavity of the peritoneum, take place; and an agony of pain of short duration, generally about two hours, terminates the scene. In all the cases in which this rupture had occurred, I have found that a portion of the great intestine had given way, either a point of the transverse arch, or of the cæcum:

in two cases I have found it in the latter situation. Occasionally the patient is worn out by irritation and exhaustion previously to the occurrence of rupture; but the latter is the more frequent mode of fatality.

The symptoms are such as would naturally spring from this slowly but steadily encroaching contraction. At first there is difficulty, but that not very considerable, of regulating the bowels; with occasionally a slight feeling of uneasiness and aching in the left iliac region, extending thence a little below the umbilicus, towards the ileum of the opposite side. This difficulty, however, goes on increasing: purgatives are consequently varied in kind and increased in strength; but though evacuations be obtained daily, they are small, liquid, and unsatisfactory. With the augmented difficulty of regulating the bowels, there is an increase of the feeling of distention, with flatulency, furred tongue, and inappetency. At length, the purgatives cease to act, and then there is distressing pain of the abdomen, which becomes extremely distended. This distention can be distinctly traced from the left flank, running across the upper part of the abdomen, immediately under the stomach, to the ileum of the opposite side, and in this direction the pain is now experienced. The explanation of the changed direction of the pain—for previously it crossed the abdomen

below the umbilicus — seems to be, that in the ordinary state of the colon, this intestine lies in the cavity with the convexity of its curve downwards; whilst in the distended state its position is reversed, the middle of its convexity being opposite to the right extremity of the great curvature of the stomach, and nearly in contact with it. Though the smaller intestines are distended, yet the greater diameter of the colon enables us to trace its semicircle very correctly across the abdomen. The distention, too, is very perceptible in the cæcum, and the pain is often felt severely there. From the extreme obstinacy of the bowels, the medical attendant is, perhaps, led to examine the rectum with a bougie, though there has been no feeling indicative of disease of that intestine, but he finds it perfectly free from obstruction. Vomiting now takes place; and probably for a couple of days every thing taken into the stomach, and even the contents of the bowels, are discharged in this way. The patient rarely, indeed, succumbs to this first distressful paroxysm; a calm generally ensues; purgatives resume their power over the bowels; the tension of the abdomen is diminished; and he is restored to *comparative* health. But his tongue will generally be found white and coated, or perhaps white at the edges, and red and glazed in the middle; and there is still uneasiness in

the abdomen now experienced in the original situation, that is, below the umbilicus. After this calm has endured an uncertain period, perhaps from a month to seven weeks accumulation again occurs, with a renewal of all the violent symptoms. This alternation of comparative calm and paroxysms of intense pain and vomiting may exist for a considerable length of time, even for a year, or double that period; but ultimately existence is terminated, most commonly under the agonizing circumstances mentioned, the bowels giving way at one point, and their contents being effused into the peritoneal cavity; though occasionally, as has already been remarked, the patient sinks previously to the occurrence of rupture and effusion.

This sketch is drawn from cases of the disease which I have had an opportunity of watching for a considerable length of time — even for years; but when called, as I have occasionally been, towards the fatal close, I have generally been able to gather a history of gradually increasing constipation and of spontaneous efforts for relief by vomiting, considerably resembling those which have been described. Should even the narration of symptoms be less distinct, yet if we find unyielding costiveness, which has continued long, and gradually increased, without the indications of enteritis or stricture of

the rectum; if at the same time we can trace accumulation along the great intestines; and if the patient, even when he thought himself in comparative health, has experienced a degree of permanent, though slight uneasiness, extending from the left ileum towards that of the opposite side, we need have little doubt of this being the form of disease under which we find him labouring.

The ratio symptomatum will be understood from the anatomical description of the state of the parts; a state calculated to produce accumulation in the whole of the intestinal canal, the rectum excepted. Those occasional severe paroxysms, with temporary impermeability of the contracted portion, I have been disposed to attribute to spasm mingling with the permanent stricture. They are of more frequent occurrence during cold and damp weather than during that of an opposite description; and should a paroxysm not occur during such weather, yet will all the uneasiness of the patient then undergo a perceptible increase. The influence of such a state of the seasons in aggravating the uneasy feelings connected with other strictured passages is well known.

The means which have been employed to delay that fatality which, alas! too surely impends, have been a light, unstimulating, and rather liquid diet, with purgatives varied in kind

and strength according to the idiosyncrasies of patients and the stage of the disease. In the early stage, clysters of warm water thrown up by means of a syringe are useful; but in the advanced one, all enemata are without effect. Leeches have been repeatedly applied over the sigmoid flexure of the colon, but I cannot say with any decided benefit to the uneasy feeling of the patient, or with much influence over the progress of the complaint.

In plethoric subjects, during a paroxysm such as has been described, a vein has been opened with apparently the effect of relaxing spasm and aiding the operation of purgatives. A moderate mercurial action has a more permanently beneficial result than any thing I am acquainted with; yet this is still but temporary. I have observed the same alleviation of the symptoms accompanying strictures of other passages, the œsophagus, for instance, from the operation of this mineral; yet I have not seen a *cure* effected by it in any of these cases. I confess myself unable to explain the mode in which it produces this temporary amelioration. For a reason sufficiently obvious, the clothing, particularly that of the feet, should be warm, and the patient should remain within doors during cold and damp weather. For the same reason, the sympathy between the skin and the intestinal canal, the warm bath has been beneficially employed.

The question occurs, Should an operation be had recourse to for the preservation of the life of the patient? There would certainly be very little difficulty in reaching the left extremity of the distended colon, immediately above the contracted sigmoid flexure, and presenting a chance of preserving life by an artificial anus. But we are unwilling to suggest a mode of relief not void of peril, and fraught with consequences loathsome to the sufferer, before the stricture has become manifestly impermeable; and when this is the case, the patient generally is in a state of so great exhaustion, as to be ill fitted to bear the operation; yet should we be presenting him with a chance of existence, certainly loathsome, in exchange for inevitable fatality; and the offer should, I think, be made when it can be done with propriety. In most of the cases which I have witnessed, the patient's state has been such, as positively forbade the operation with a prospect of success, when all other hope of prolonging existence had failed. In a case which I attended three years ago, I thought there was some probability of its being performed with success, and in consultation I urged it rather strongly; but it was objected to on two grounds: first, that there might still be a doubt as to the real nature of the disease; and, secondly, that the risk was extreme, from the great exhaustion of the patient. The second ground of objection

I thought the more valid, and as it was urged by the surgeon with whom I was immediately in consultation, and whom I knew to be as bold as he was unquestionably skilful, I forbore to press an operation on my undivided responsibility, which, so far as I knew, was novel, and certainly, in the existing circumstances of the case, very perilous. This patient died three days after. The intestine had given way about the middle of the transverse arch of the colon, and a stricture was found at the sigmoid flexure too strait to admit a crow-quill. It is probable that when the operation was proposed, the ulcerative process had already commenced, and it seems questionable whether relieving the distention in that stage would have checked its progress. In these cases, before the agony of pain, arising from the rupture of the bowel and effusion of its contents which precede death, I have observed a state of peculiar sinking, which I have been disposed to ascribe to the ulcerative inflammation of the intestine. There is certainly a difficulty in seizing a time for the operation, when it has at once become imperiously necessary, and when the patient's general state and the presumed condition of the intestine present a prospect of its being performed with success. Should I discover such a state, I certainly would not shrink from urging it.

The bowels are subject to obstructions from causes of a much more inscrutable nature than contraction of the sigmoid flexure of the colon — from causes so obscure, indeed, that their real character may be the subject of speculation, but not of actual certainty, during life; but this is the less to be regretted, as more precise ideas regarding them could scarcely suggest a practicable remedy for many of these cases. Two examples of these mechanical obstructions having fallen under my observation at the very time that I am writing this Essay, I shall present a brief sketch of them.

The first case, which I visited with Mr. Ferguson, surgeon in Sunderland, occurred in the person of an infant aged four months. Hemorrhage to an alarming extent took place from the intestines early in the morning of the seventh of August. As the bowels had been pretty freely moved by castor oil the preceding day, and as our little patient seemed much exhausted by the bleeding, an opiate was given. Leeches were subsequently applied to the abdomen, and attempts were made to procure fecal discharges by purgatives and enemata, but they proved unavailing. Occasional discharges of blood still continued; the infant lay moaning occasionally, though not apparently suffering acute pain: there was no distention of the abdomen. Death took place on the ninth. I attended the ex-

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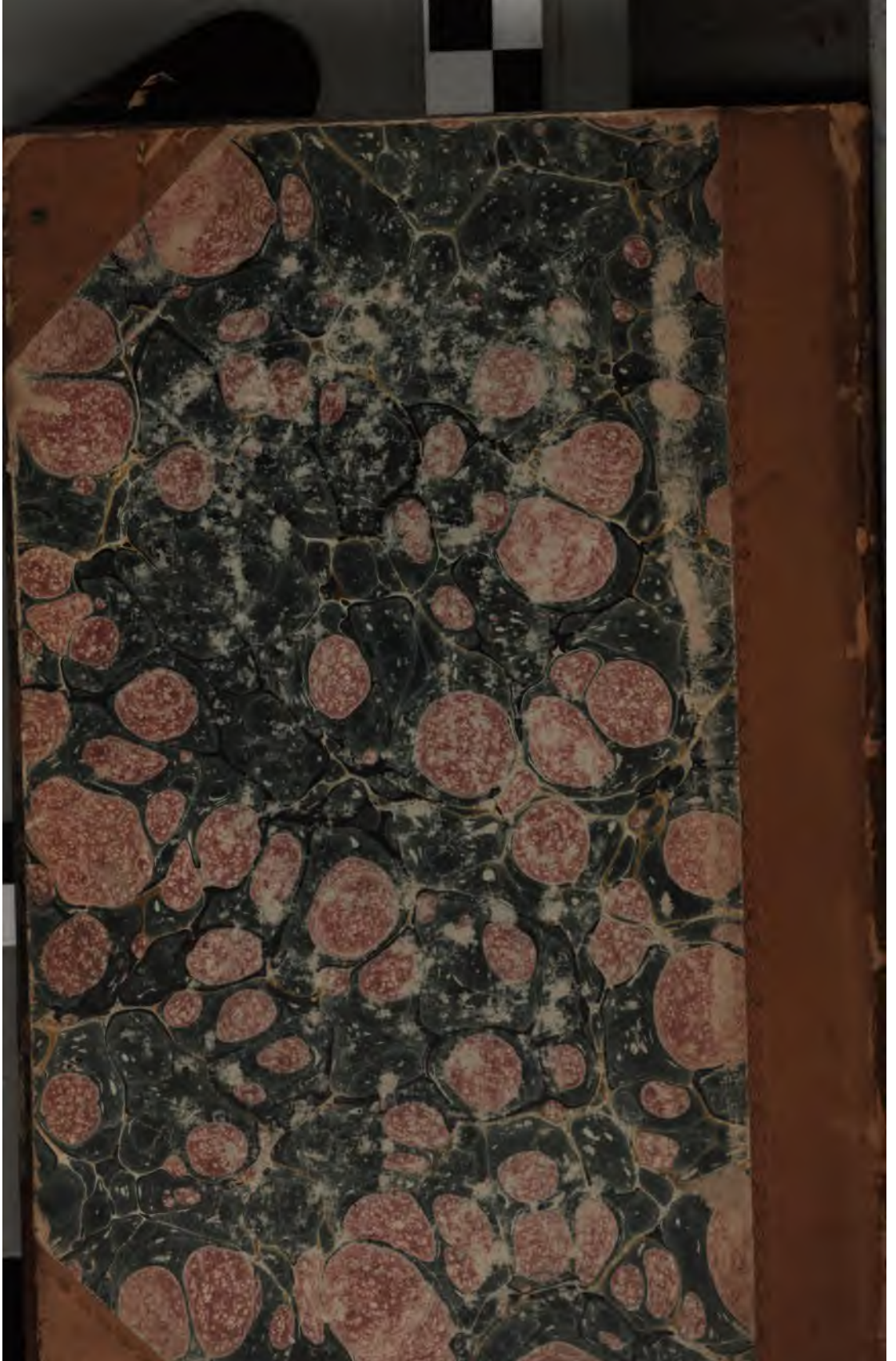
liquid discharges; yet there was evidently some inflammatory action still existing, indicated by occasional vomiting, hiccough, dry tongue, abdominal uneasiness and pain on pressure, and I was requested to visit him on the eleventh of August. Leeches were applied to the abdomen, and the laxatives which had already been employed were continued. The case was fatal on the fifteenth, and I attended the examination by Mr. Ward on the following day. The omentum had become adherent at one small point to the mesentery, and within the noose thus formed several convolutions of the lower portion of the ileum were strangulated. The strangled portion was of a dark purple colour, and easily torn; the stomach and small intestines above this portion were healthy in texture, but much distended; and the large intestines were comparatively contracted.

I attended a few years ago a case with the same gentleman exceedingly similar to this; great part of the ileum being strangulated within a noose formed by an adhesion of the vermiform appendix to the mesentery.

THE END.